Yachtspot v4 Installation Guide

For optimal display of images within this document, please adjust Acrobat Reader to display at 131%.

Yachtspot should be installed by experienced professionals who are familiar with Radio Frequency (RF) issues such as gains and losses, and the installation of electronic devices on Yachts. Regulations regarding maximum antenna gain, power output, and maximum permissible exposure vary from country to country. It is the responsibility of the end user to operate within the limits of these regulations. You should make sure your installer is aware of these regulations, and can advise you on compliance.

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Introduction

Yachtspot connects on board networks to the Internet through marina, or near shore wireless hotspots running 802.11b/g. It has been designed from the ground up to provide a simple to use, always on Internet connection, just like you have at work, or at home.

Yachtspot was created with the professional installer in mind, providing just about every option you will ever need, and real support when you need it.

In Yachtspot v2 we addressed requests from clients who asked us to make it even simpler to log on, and added extra features for those who wanted a bit more control.

For those who just wanted to get online quickly, we created the 'Easy logon' page, where we removed all but a few basic options, added some easy to understand icons indicating hotspot signal strength, stability, and whether the connection is encrypted, and then we hid away all the administration pages to create a more focussed, and less cluttered interface.

For those who wanted more control, we created the 'Advanced logon' page where we added WPA & WPA2 support, control over the power output, WEP shared authentication, and the ability to select a hotspot by it's BSSID. We also added a traceroute utility, the support pack, which provides a comprehensive report on Yachtspot's sub systems, and additional inbuilt error checking, with helpful messages.

In Yachtspot v3 we added features to help you log on more quickly.

'Under the hood' the log on process was rewritten to speed it up, and make it more aggressive in very lossy, and contested environments, an entirely automatic process which requires no configuration, or user interaction.

We also added additional information designed to assist the user in selecting the best performing hotspots, and to monitor the log on process.

On both the 'Easy' and 'Advanced' logon pages we added an embedded web application which updates information on the status of the wireless connection during the log on process.

In addition, we added on the 'Advanced' page an extra icon indicating 'Frequency Contention'. This is a guide to how many other hotspots are sharing frequency with your selected hotspot.

In this latest version of Yachtspot 'v4' we have added further functionality.

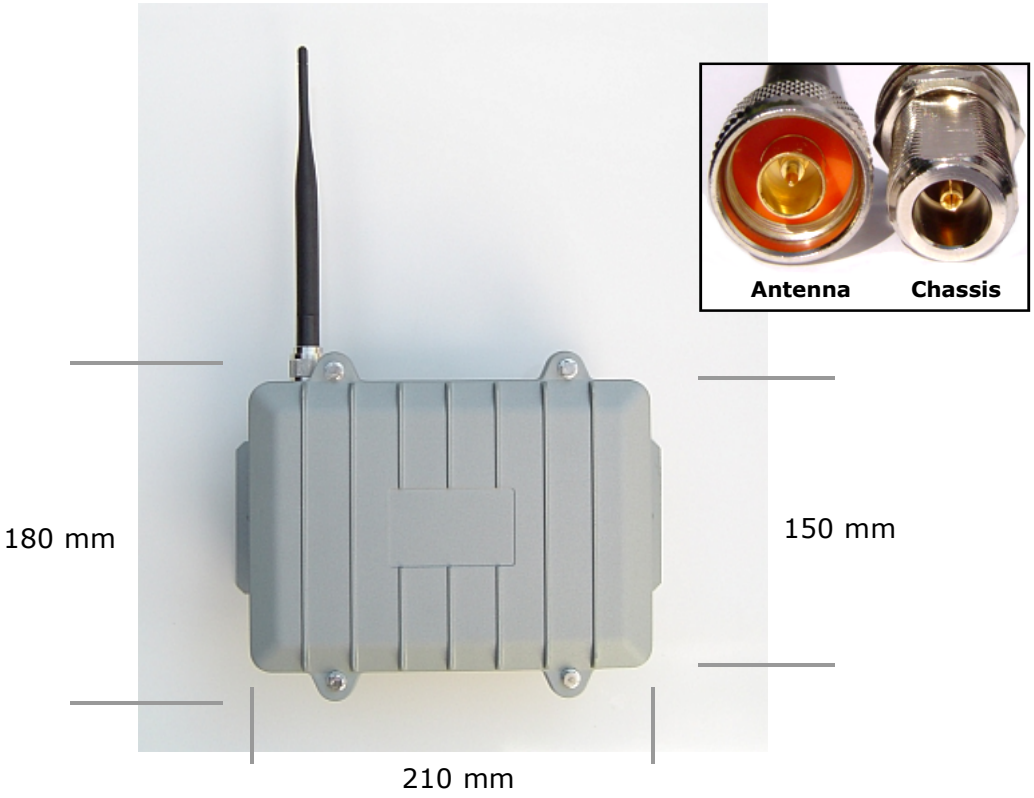
The main new features are a 'Key list' which allows you to store up to ten WEP/WPA keys for ease of use, and 'Teaming' which allows Yachtspot to work with other IP devices such as 3G routers, and allows you to connect to the Internet using these alternative devices, while controlling the systems centrally via a simple push button interface on the Yachtspot.

We hope you will find these new features useful. In accordance with our policy to support existing clients with upgrades where possible, all Yachtspot hardware produced in the last four years, running any software revision can be upgraded to use the new firmware.

Enjoy!

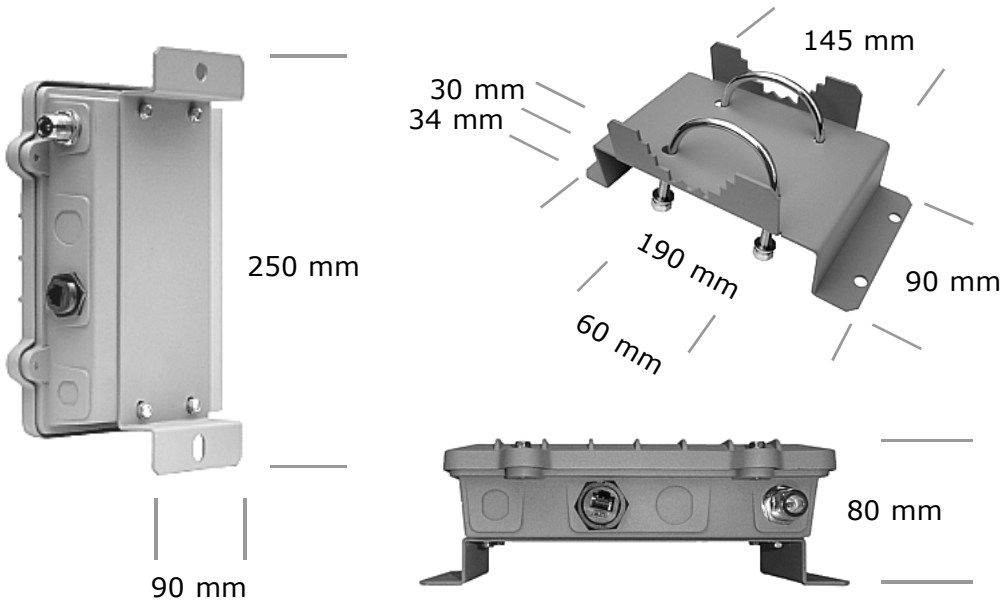
The Hardware

Yachtspot's waterproof case is made from die cast aluminium, NEMA 67 rated, and comes complete with bulkhead and pole top fittings.

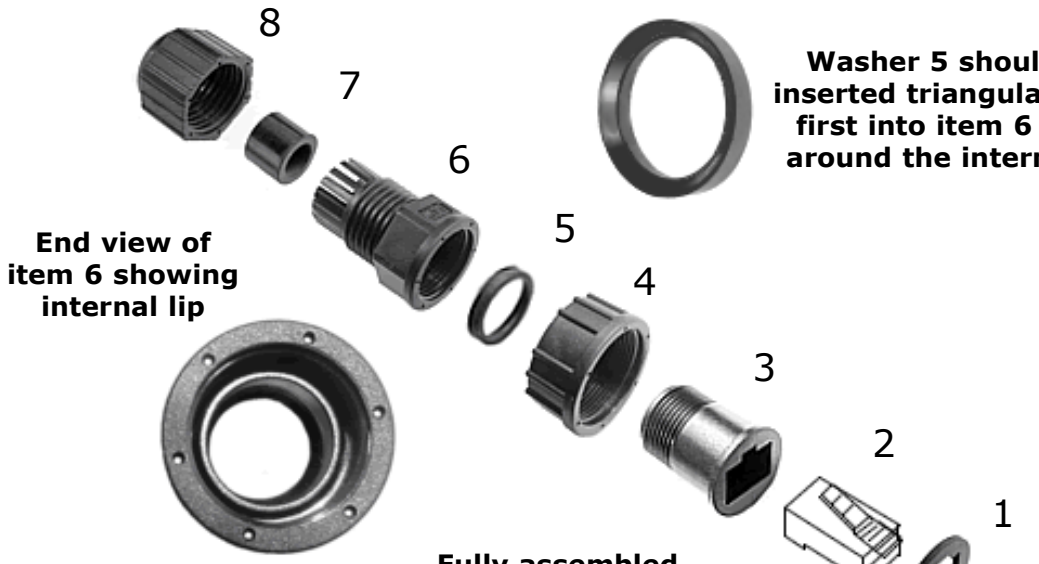


If Yachtspot is mounted where it is exposed to water it should be mounted with the connectors facing downwards. Otherwise the case can be mounted using any orientation to suit.

Yachtspot has one female N-Type connector for connection to external antennas. Good quality low loss coax cable should be used for the antenna connections to minimise RF signal losses. We recommend only LMR400 [Max 18 metres] or LMR240 [Max 13 metres] be used.



On the edge of the Yachtspot is an LTW waterproof Ethernet connector. The mating half of this IP67 connector is supplied with the Yachtspot and is assembled in the order shown below. If you are installing your Yachtspot in an environment that doesn't require a waterproof Ethernet connection, then the socket will accept a standard RJ45 plug.



Fully assembled connector

The Yachtspot is powered via its Ethernet connection using the supplied PoE adaptor [Dimensions 60 x 25 x 25 mm] and an auto sensing 100-240 VAC power supply. Voltage input max 264 vac, min 90 vac, output 18W/12V/1.5A dc. Regulation:± 2%. Dimensions 100 x 50 x 35 mm. The power supply requires a standard IEC mains lead (not supplied).

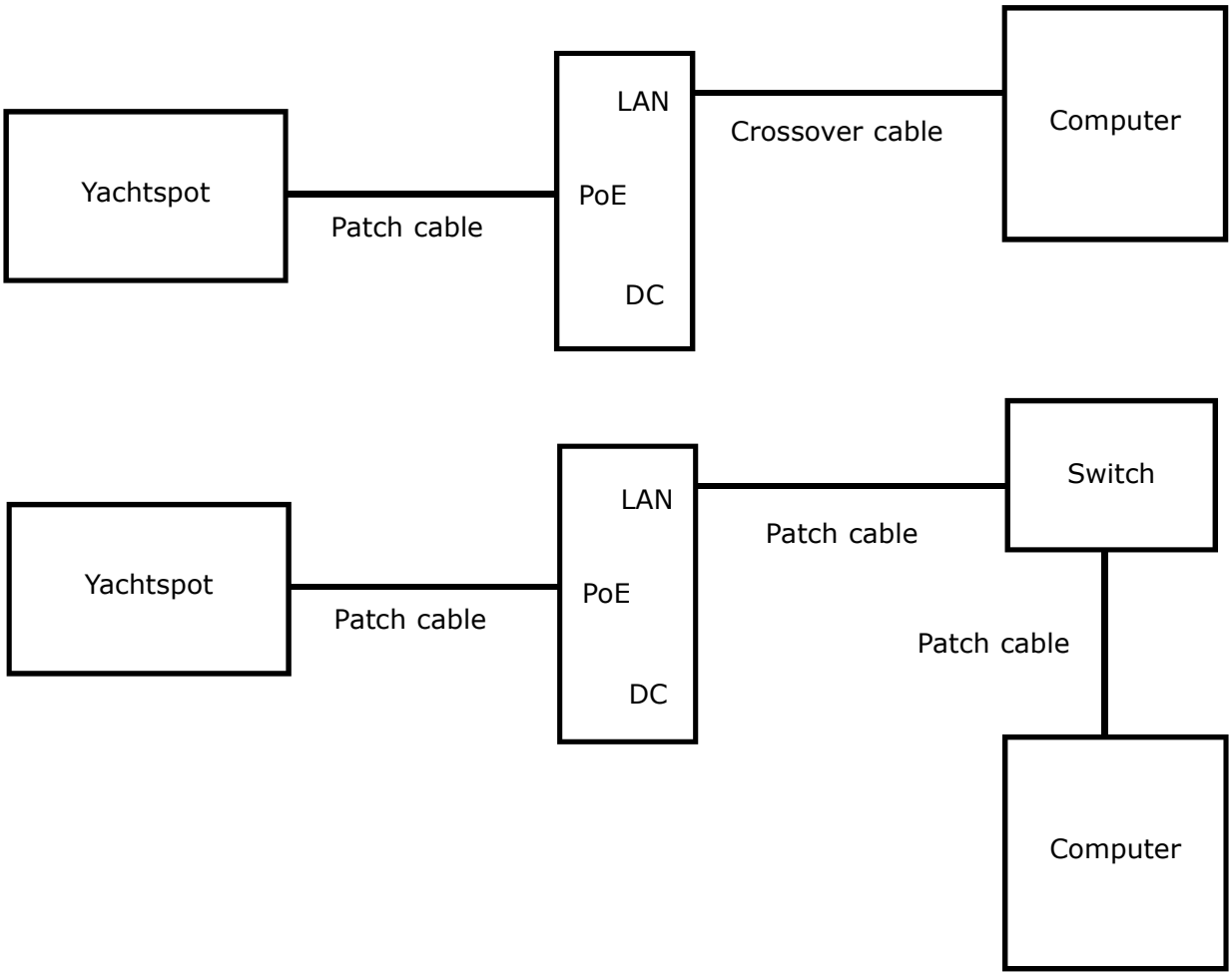
DC jack	+ centre - sleeve
POE	+ pins 4.5 - pins 7,8
LAN	no power

The RJ45 port PoE is connected to the Yachtspot using a patch Ethernet cable. The RJ45 port LAN is connected to your network switch/hub using a patch Ethernet cable or directly to your computer using a crossover cable. The DC port is connected to the auto sensing power supply.

Yachtspot's PoE is not 802.3af compliant. DO NOT PLUG IT INTO OTHER PoE DEVICES. The Ethernet cable that carries power between the PoE port on the adaptor and the Yachtspot has been tested to 15 metres. The low voltage [12v] sets a limit on length because of losses due to resistance. Longer runs should be tested. The total length of Ethernet cable, powered, and non powered should not exceed 100 metres.

If you wish to run Yachtspot from other than the supplied power supply, such as from a battery, feel free to telephone or email us for advice.

During initial configuration you should connect to the Yachtspot as shown in either of the two diagrams below.



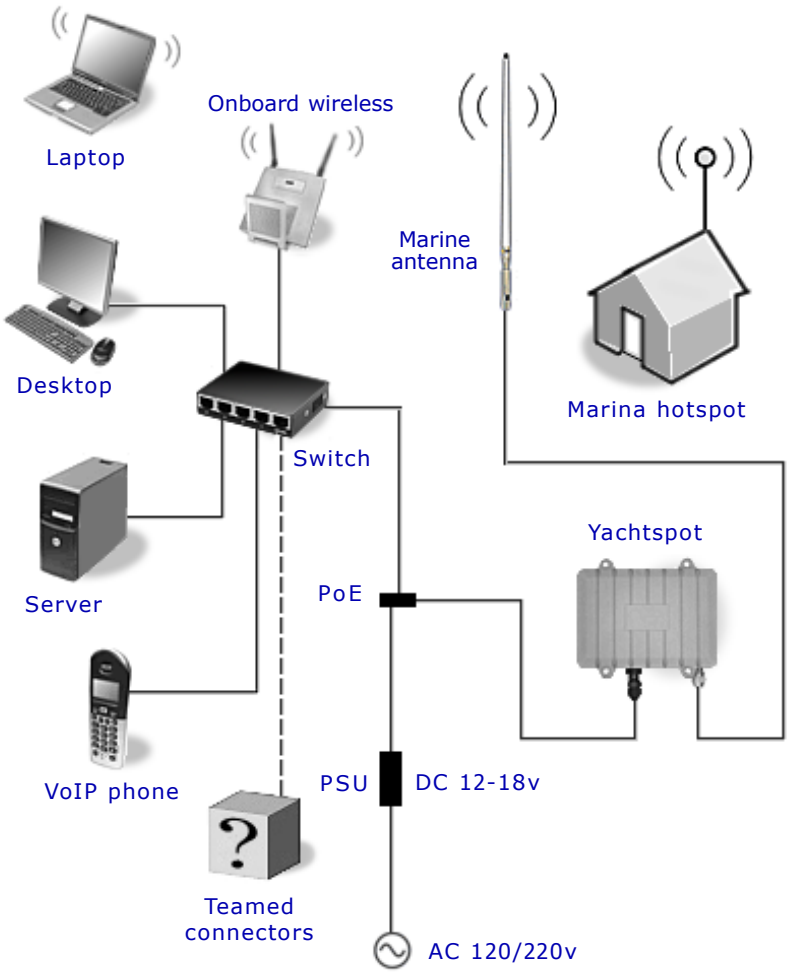
Crossover cable specification

One end RJ45 Male	Other end RJ45 Male
1	3
2	6
3	1
*	*
*	*
6	2
*	*
*	*

Patch cable specification

One end RJ45 Male	Other end RJ45 Male
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8

Typical installation diagram



Browser requirements and recommendations

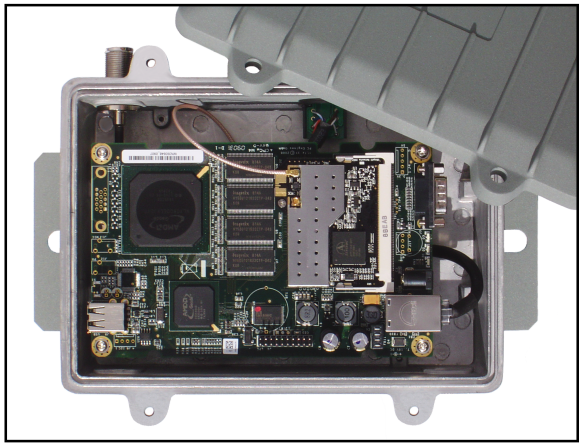
Yachtspot is administered using your Internet browser.

The browser should support the display of images, JavaScript, and session cookies.

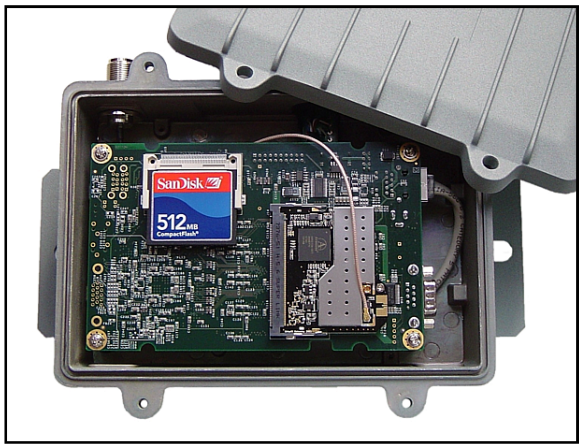
We recommend these browsers

On Windows IE8, IE7, IE6, Firefox.
On Apple MAC's, Firefox.
On Linux or similar, Firefox.

Motherboard layout 1 [v1 hardware]



Motherboard layout 3 [v3-v4 hardware]



Motherboard layout 2 [v2-v3 hardware]

Note: Motherboard's 2 and 3 are the same generation. Motherboard 3 is reverse mounted because it has an additional USB connector. The USB connector is not used.

All the hardware shown here is upgradable to, or uses v4 firmware. Our policy is to supply FREE upgrades to the firmware to existing customers, and to develop firmware revisions to support earlier hardware while it is practical to do so.

Connecting for the first time

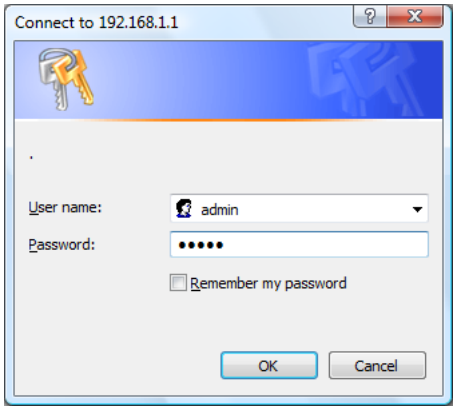
If there is an existing DHCP server on your network we recommend connecting using the crossover cable for the initial configuration because the Yachtspot is enabled as a DHCP server by default and this could interfere with your existing configuration.

If your existing network uses 192.168.1.xxx for network addressing you may need to change settings within your network or on the Yachtspot first before you integrate it into the existing network.

Logging into Yachtspot

Set your computer to gain its IP address via DHCP, or set it to an address on the 192.168.1.xxx network. (Don't use .1 as this is the Yachtspot's address).

In your browser enter the default IP address of your Yachtspot http://192.168.1.1
You will then be presented with a dialog box requesting your username and password.



Default Configuration

Yachtspot is supplied with the following default configuration.

LAN IP Address: 192.168.1.1
Subnet Mask: 255.255.255.0
DHCP server: Active

Log in credentials:
Username: admin
Password: admin

Administrator
Password: admin

If you reset the unit to factory defaults these are the settings that you need to use after it reboots.

Yachtspot has two password levels, a user password that gains access to the Welcome, Easy, and Advanced Configuration, Status, Change connector (if configured), and About screens, which gives the user enough access to connect to an available marina hotspot, but not to change the system's main configuration, and an administrator password that allows access to the rest of the configuration screens.

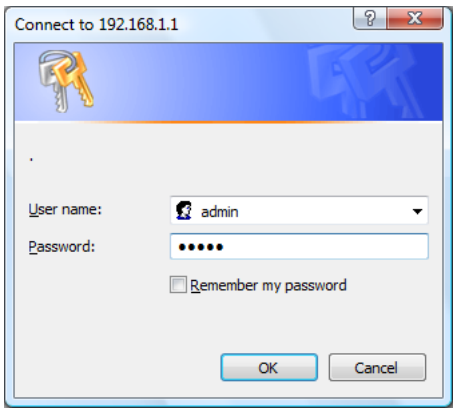
The default settings for the Yachtspot should be close to the requirements of most installations, and configuration of the Yachtspot can often be as simple as changing the LAN IP address, please see [Setting your LAN IP address - Our recommendations], and the DHCP server range.

The Owner and Crew pages

Logging in to your Yachtspot

Open your browser, and go to to the URL set for you by your installer. You will be presented with a dialog box requesting your username and password.

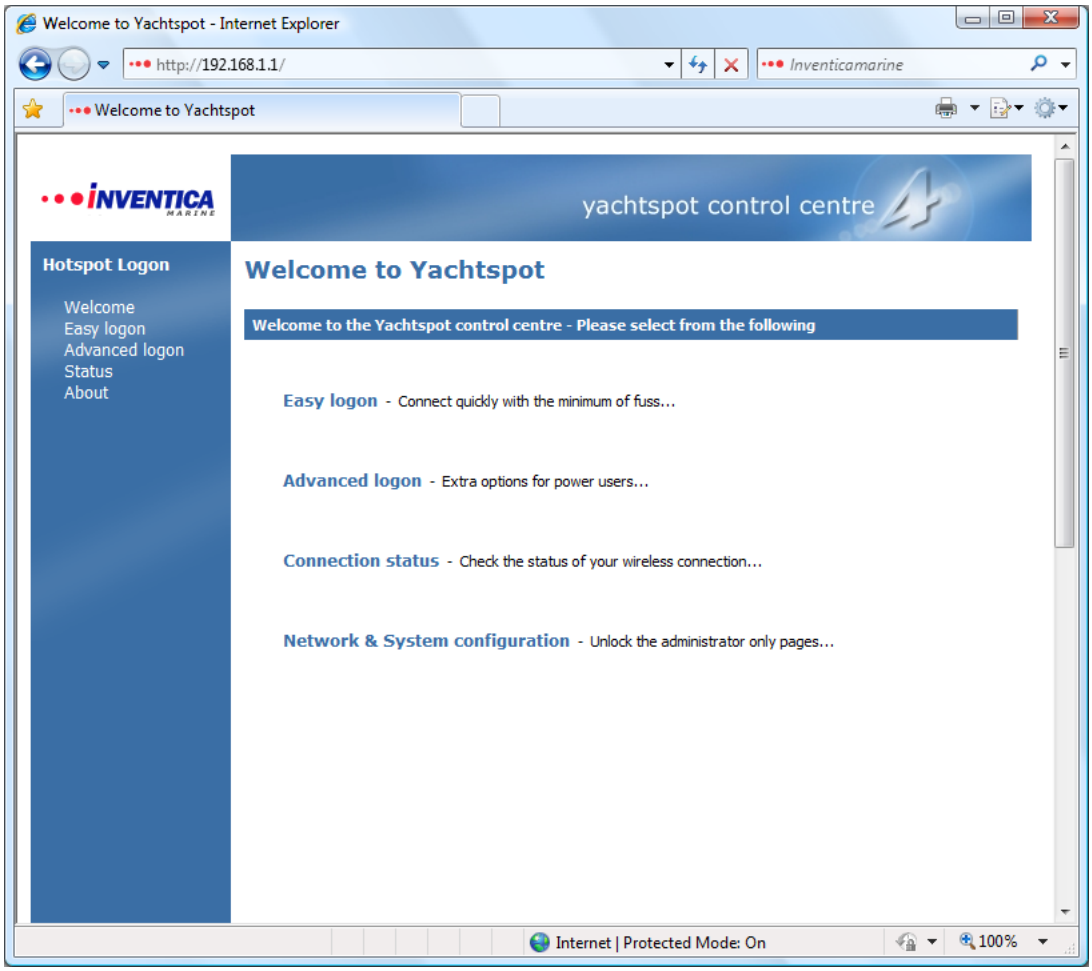
Enter the username and password supplied, and click OK.



Welcome to Yachtspot

The welcome screen only gives access to the functions required to logon to marina hotspots.

The 'Network & System configuration' option allows you to unlock the administrator pages.


Welcome to Yachtspot - Internet Explorer
http://192.168.1.1/
Inventicamarine
Welcome to Yachtspot
INVENTICA MARINE
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
About
Welcome to Yachtspot
Welcome to the Yachtspot control centre - Please select from the following
Easy logon - Connect quickly with the minimum of fuss...
Advanced logon - Extra options for power users...
Connection status - Check the status of your wireless connection...
Network & System configuration - Unlock the administrator only pages...
Internet | Protected Mode: On
100%

Notes:

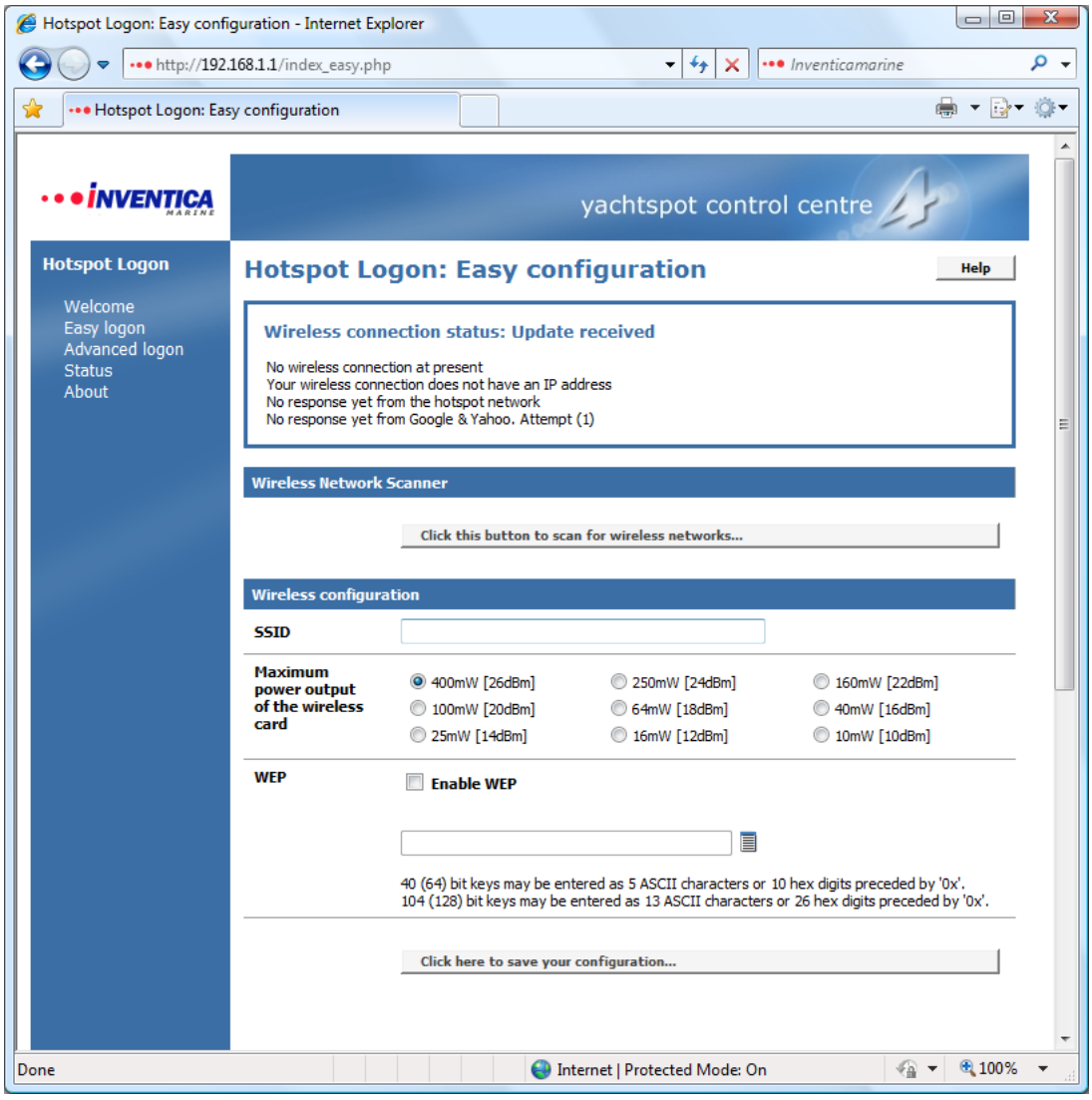
Until you unlock the administrator pages, the menu only displays the options a user can access.

The 'Change connector' menu item will not be displayed unless 'Team connectors' is configured.

Easy configuration

This is the screen most users will use to logon to hotspots.

Simply click the button to scan for hotspots...



Technical note:

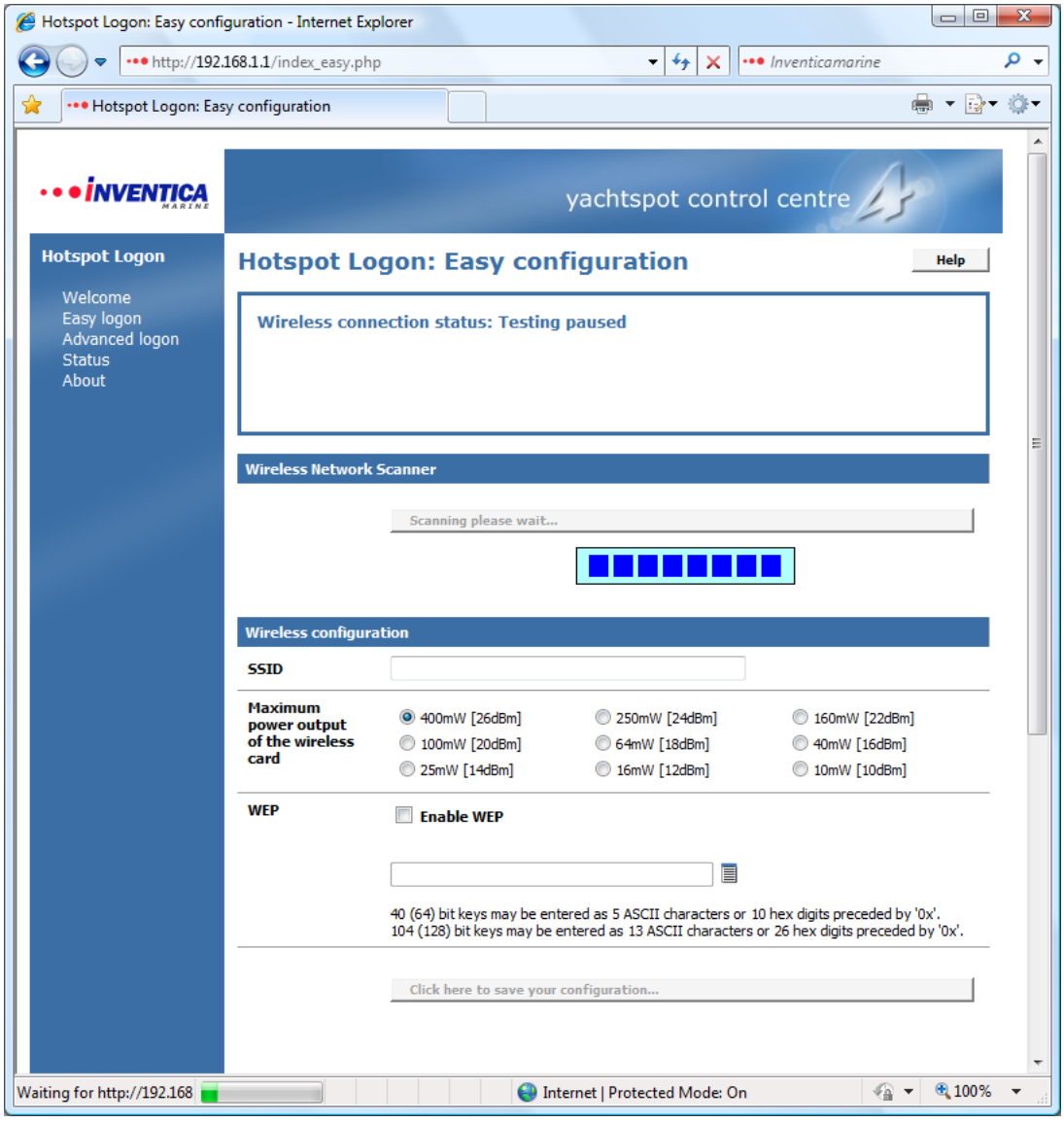
The Easy configuration screen has been simplified to use default options that will work in almost all cases.

Those default options are:

1) Allow the hotspot to supply the network settings of the wireless card by DHCP.
2) Allow the network card to ROAM.
3) WEP encryption with OPEN authentication only.

For other options please use the Advanced configuration screen

Scanning takes about 30 seconds...



...an animation bar shows while scanning continues

Some notes on power output.

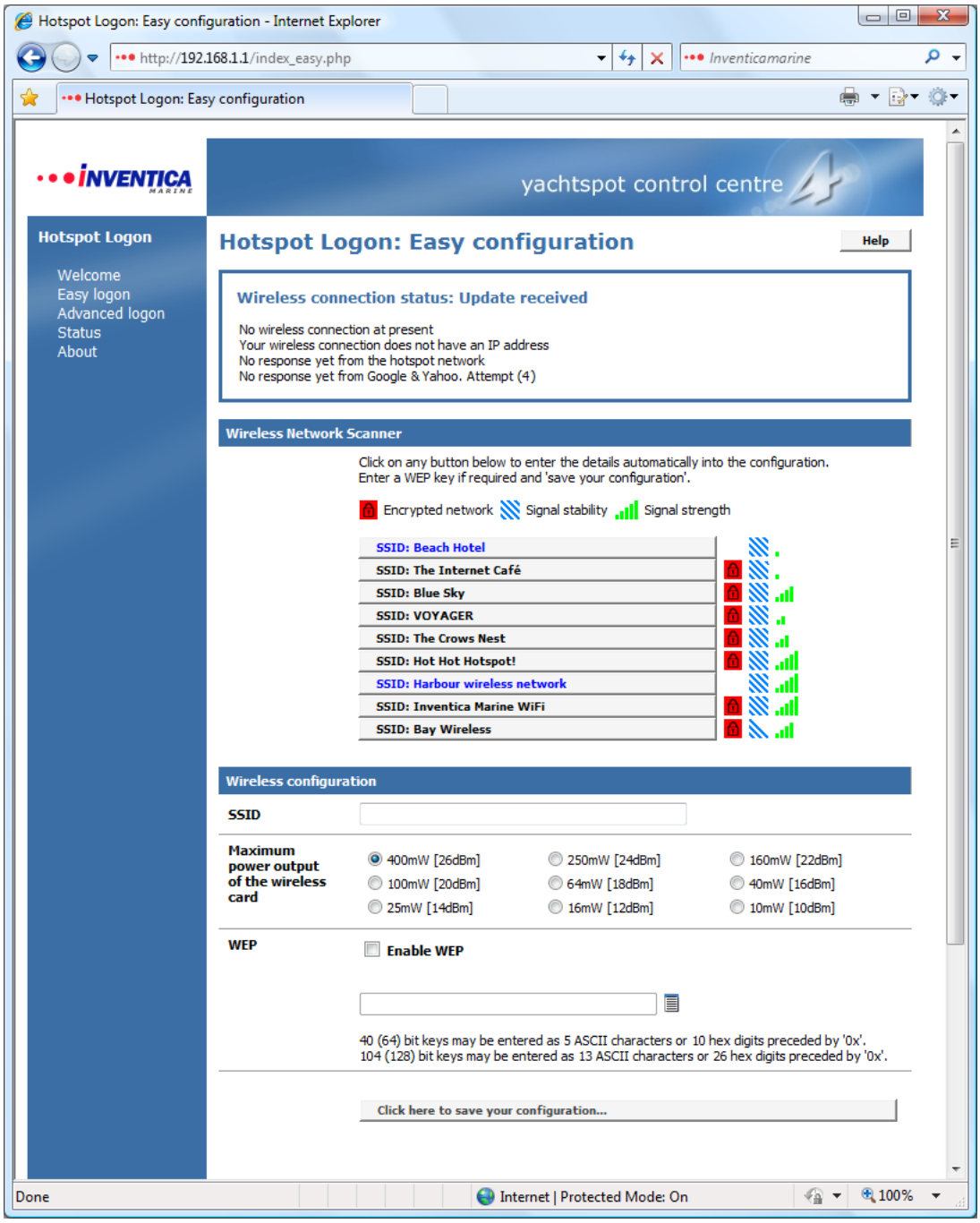
Changing the power output only affects the power output of Yachtspot's wireless card. The scan results will remain much the same because the results are dependant on the power of the signal coming from the other wireless stations to the Yachtspot, which remains the same.

After scanning the user will be presented with a screen similar to this.

A list of wireless networks are displayed as buttons with associated icons indicating, whether the network is encrypted, with the stability, and strength of the signal received from each network.

Networks without encryption are displayed in blue on the button.

Note: The name of a wireless network is called its SSID.

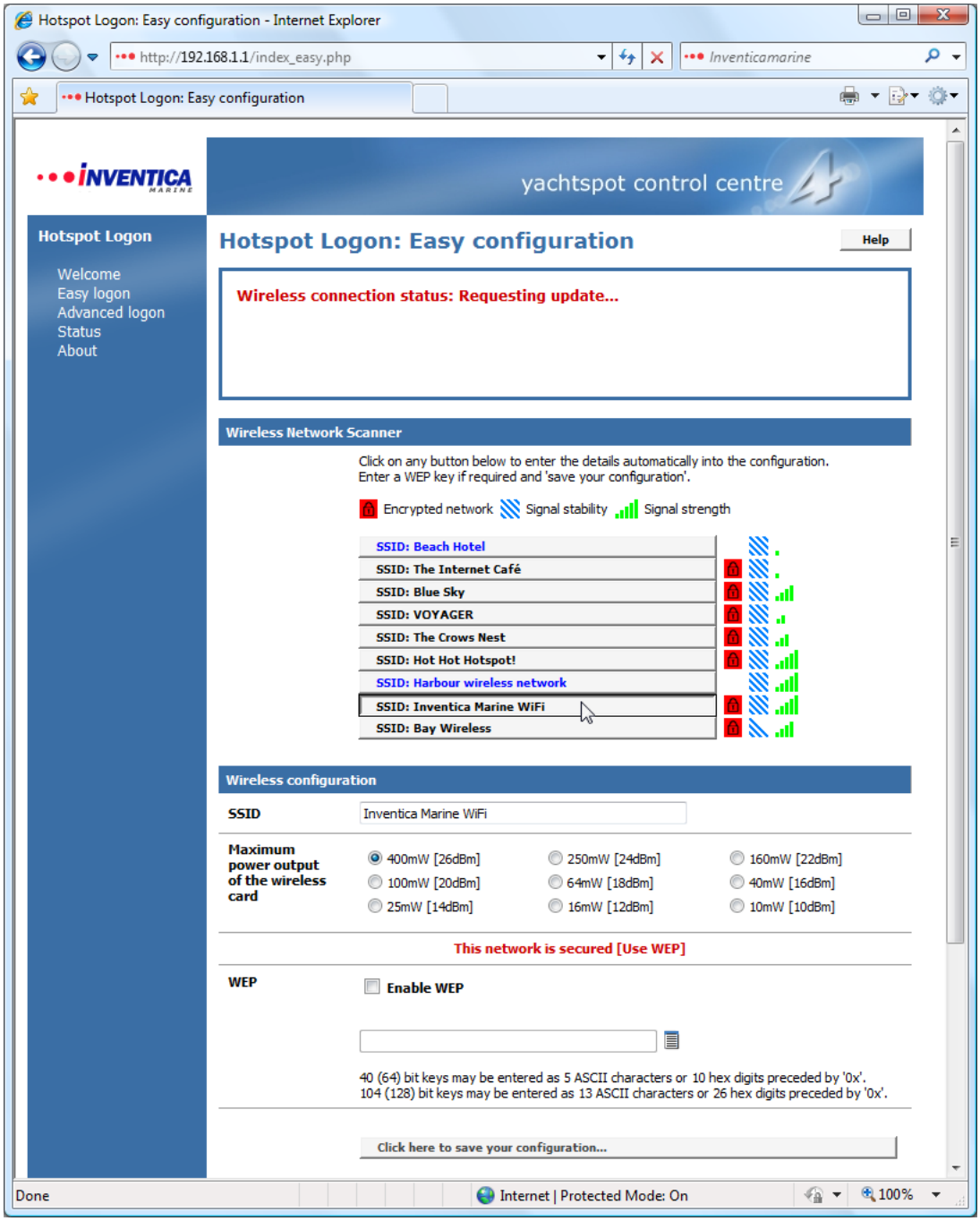


If you want to scan again without connecting to a network then you will need to click 'Easy logon' on the menu on the left of the screen to get Yachtspot to redraw the screen and give you another 'Click this button to scan for wireless networks…' button.

Press the button for the network that you wish to connect to and Yachtspot will fill in the network's name in the SSID box for you.

If you are connecting to a WEP enabled network then you will need to enter the WEP key in the box provided lower down the screen. If your WEP key is in hex then you must precede it with '0x' that's zero, lowercase 'x'. In the example below the user has selected network 'Inventica Marine WiFi'. A warning has been displayed that an encryption key is required.

Note: Most commercial hotspots use unencrypted networks. You will be redirected to a page to pay for access when you attempt to access the Internet, some smaller operators issue a WEP key to control access.



Press the button at the bottom 'Click here to save your configuration' and your Yachtspot will attempt to connect to your chosen network.

'Key list' instructions

To enable the 'Key list' icon. Tick the checkbox next to 'Enable WEP'.

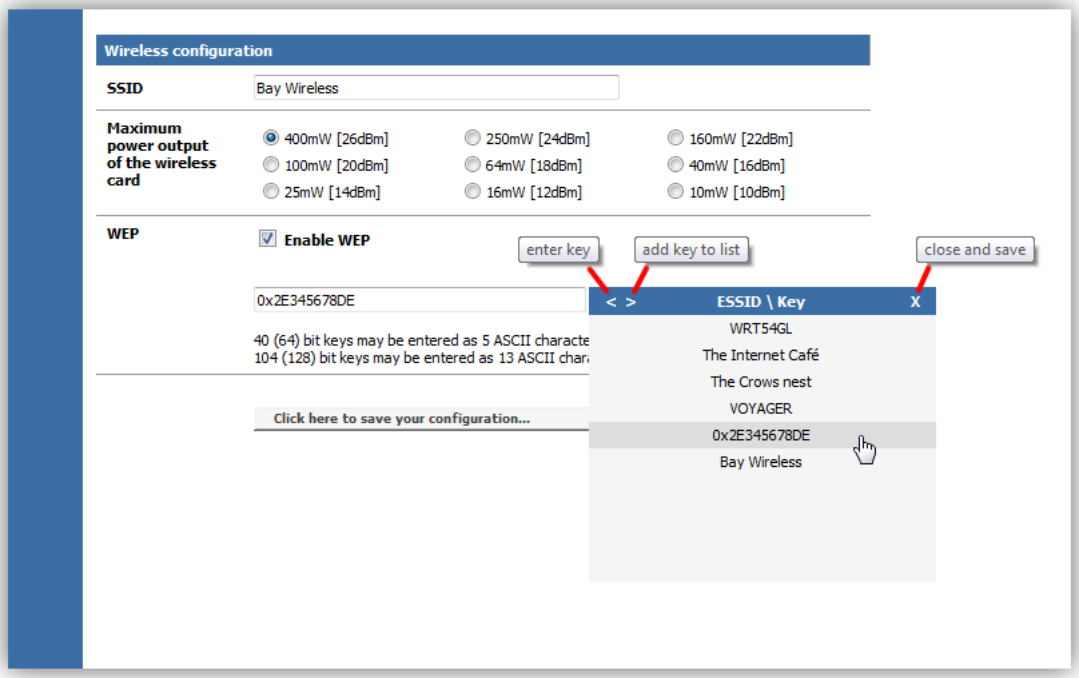
Click on the icon to reveal the 'Key list'. You can save 10 SSID/Key combinations[Fields].

As you move your mouse over the SSID's they rollover to display the key.

Before clicking either the 'enter key' '**<**' or the 'add key to list' '**>**' symbols you must select the field you want to use. To select a field, click on it, and it turns permanently grey. To deselect, click again.

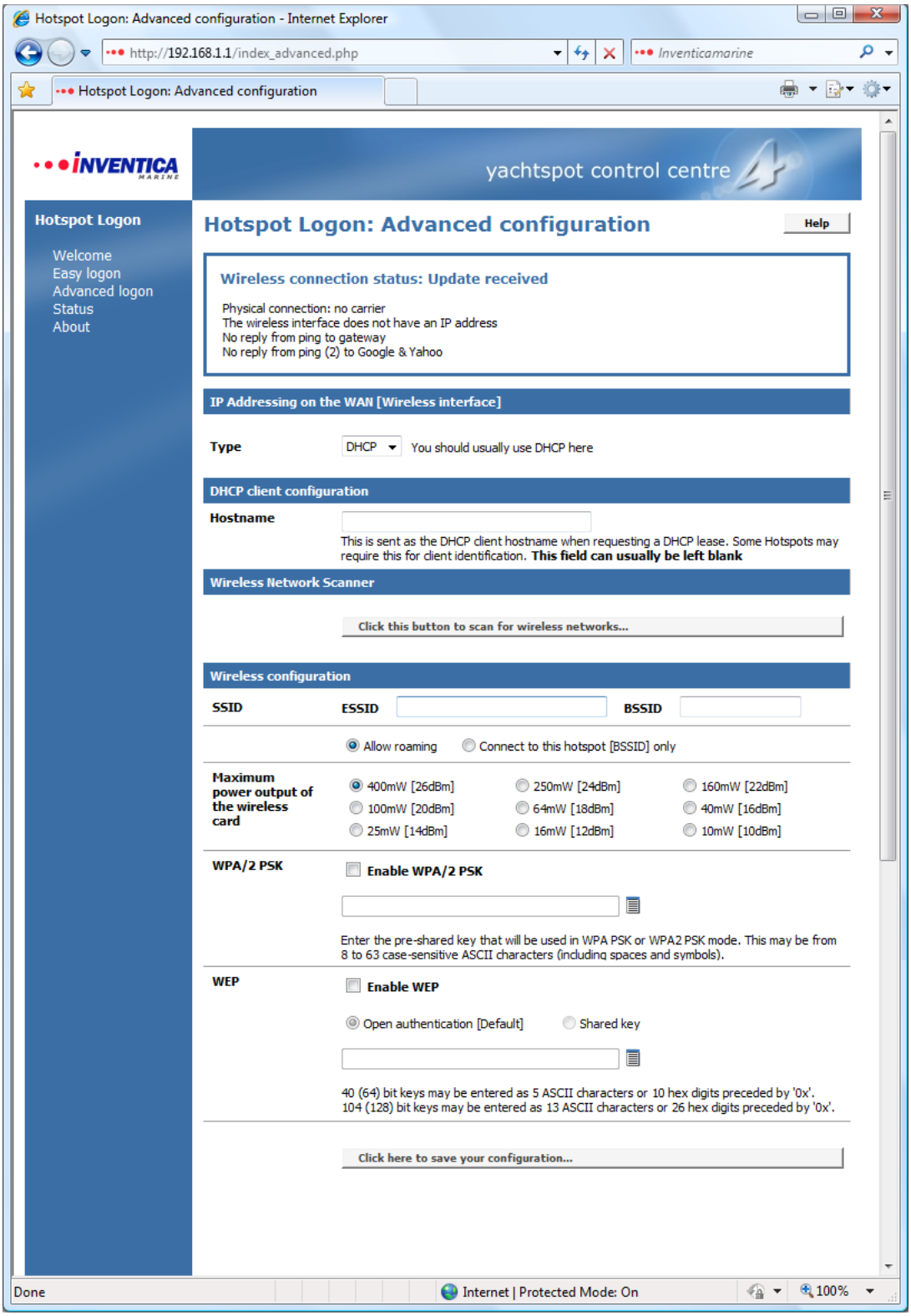
If you 'add key to list' '**>**' when you close '**X**', the SSID, and key are saved.

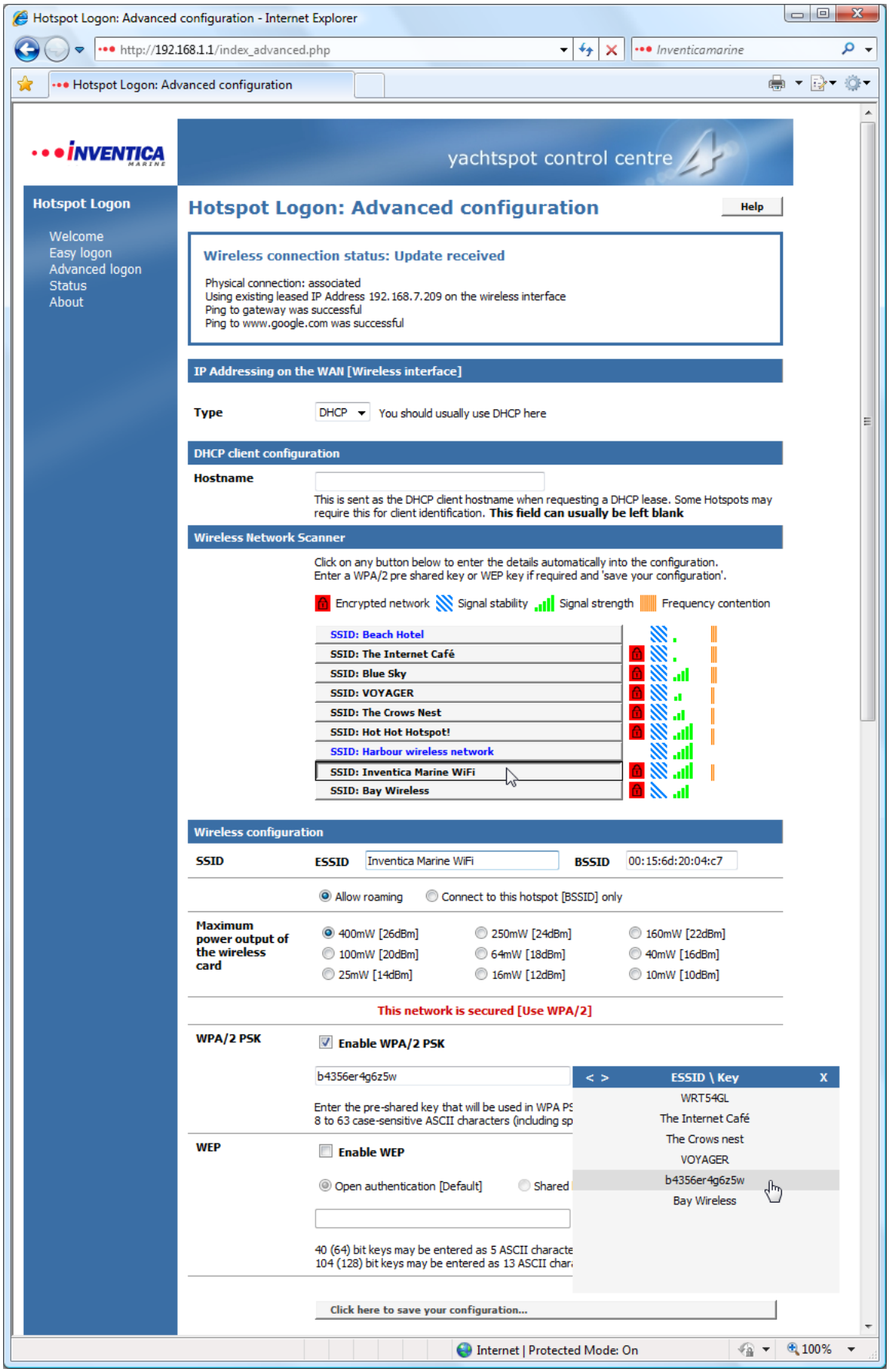
Please note: This is not a password safe. You should NOT use this to save sensitive passwords.



Advanced configuration

This is the Advanced configuration screen. It's unlikely you will require any options here to logon to commercial hotspots. However you may require some of these if you are given access to private networks.


Hotspot Logon: Advanced configuration - Internet Explorer
http://192.168.1.1/index_advanced.php
Inventicamarine
Hotspot Logon: Advanced configuration
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
About
Hotspot Logon: Advanced configuration
Help
Wireless connection status: Update received
Physical connection: no carrier
The wireless interface does not have an IP address
No reply from ping to gateway
No reply from ping (2) to Google & Yahoo
IP Addressing on the WAN [Wireless interface]
Type
DHCP
You should usually use DHCP here
DHCP client configuration
Hostname
This is sent as the DHCP client hostname when requesting a DHCP lease. Some Hotspots may require this for client identification. This field can usually be left blank
Wireless Network Scanner
Click this button to scan for wireless networks...
Wireless configuration
SSID
ESSID
BSSID
Allow roaming
Connect to this hotspot [BSSID] only
Maximum power output of the wireless card
400mW [26dBm]
250mW [24dBm]
160mW [22dBm]
100mW [20dBm]
64mW [18dBm]
40mW [16dBm]
25mW [14dBm]
16mW [12dBm]
10mW [10dBm]
WPA/2 PSK
Enable WPA/2 PSK
Enter the pre-shared key that will be used in WPA PSK or WPA2 PSK mode. This may be from 8 to 63 case-sensitive ASCII characters (including spaces and symbols).
WEP
Enable WEP
Open authentication [Default]
Shared key
40 (64) bit keys may be entered as 5 ASCII characters or 10 hex digits preceded by '0x'.
104 (128) bit keys may be entered as 13 ASCII characters or 26 hex digits preceded by '0x'.
Click here to save your configuration...
Done
Internet | Protected Mode: On
100%



Functionality is similar to the 'Easy' screen. Click to scan, produces the same result...

Reasons to use this screen are

1) You need to set up static network settings for the wireless card.
2) You need to supply a hostname to the DHCP server on the WAN.
3) You want to select which specific access point to associate with by selecting its BSSID.
4) You need to use WPA, or WPA2 encryption.
5) You need to use WEP with SHARED authentication.
6) This screen displays the frequency contention icon.

Notes on the 'Wireless connection status' embedded web application

On both the 'Easy logon' and 'Advanced logon' pages there is an embedded web application which runs tests on the Yachtspot, and updates information on the status of the wireless connection during the log on process.

The tests are run every 10 - 20 seconds, and the results are updated without refreshing the page, or requiring any action on the part of the user.

The tests run are as follows

Physical connection: Think of this as the wireless 'tuning in' to the hotspot whose SSID you selected. The options are associated [connected], no carrier [not connected].

IP address: The IP address of the wireless card on the Yachtspot. This can be supplied by DHCP [where the hotspot automatically supplies the settings] or Static. The options for DHCP are, no IP address, using existing leased IP address, using new leased IP address.

Once you have received an IP address you should try to connect to the Internet. The subsequent tests may fail simply because you need to log on and pay for access.

Ping to gateway: This tests whether the hotspot network is responding. No response may not necessarily indicate a lack of connectivity, the gateway may be set not to respond to pings.

Ping to Google or Yahoo: Yachtspot first tries to ping Google, and if it receives no response tries Yahoo. No response may just indicate that you need to log on to the hotspot network before Internet traffic is allowed to pass, or simply that packets were lost.

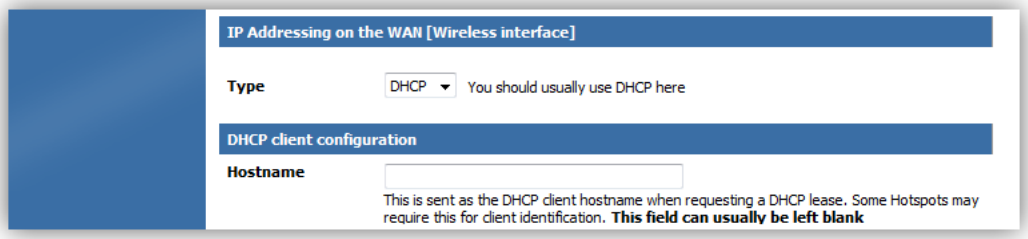
While you can think of these tests as sequential i.e. establish physical connection, get IP address [if DHCP], ping gateway, ping web site, the tests themselves especially during the initial establishment of connectivity with a hotspot, may appear out of sync e.g. no carrier but with IP address, and maybe a successful ping. This is normal. If it continues past the first couple of minutes it may indicate a poor connection. However, it may still be quite usable, wireless networks are lossy, and are continually renegotiating connectivity, to establish the best connection parameters, especially during the initial stages, a simple test is just to open a web page and see if it works.

Advanced options

If your chosen network supplies dynamic IP addresses via DHCP

Ensure DHCP is set as the IP Addressing on the WAN [Wireless interface] type.

You can supply a hostname, or a FQHN to the DHCP server. This may be required for identification, or it can be registered in a DDNS server on the WAN for name resolution. This field can usually be left blank

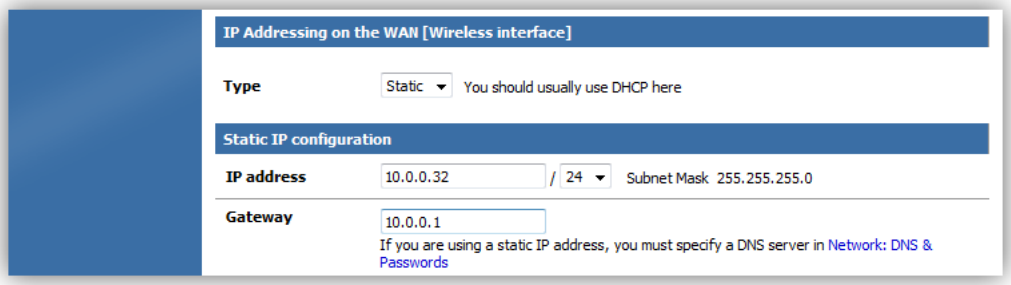

IP Addressing on the WAN [Wireless interface]
Type
DHCP
You should usually use DHCP here
DHCP client configuration
Hostname
This is sent as the DHCP client hostname when requesting a DHCP lease. Some Hotspots may require this for client identification. This field can usually be left blank

If your chosen network requires static IP configuration

You need to change the IP Addressing on the WAN [Wireless interface] type from DHCP (which is the default setting), to Static. This will display the Static IP configuration options.

Your network provider will need to supply you with the following information:

Your IP address
Your subnet mask
Your default gateway
A DNS server [Optional]



Under ‘Static IP Configuration’ you need to enter your IP address.

Under ‘Static IP Configuration’ you need to enter your subnet mask. It may be supplied in dot notation and look something like 255.255.255.0 as opposed to CIDR notation which looks like /24. Yachtspot requires it in CIDR on this screen. See conversion chart below.

CIDR	Dot Notation
/1	128.0.0.0
/2	192.0.0.0
/3	224.0.0.0
/4	240.0.0.0
/5	248.0.0.0
/6	252.0.0.0
/7	254.0.0.0
/8	255.0.0.0
/9	255.128.0.0
/10	255.192.0.0
/11	255.224.0.0
/12	255.240.0.0
/13	255.248.0.0
/14	255.252.0.0
/15	255.254.0.0
/16	255.255.0.0

Conversion Chart

CIDR	Dot Notation
/17	255.255.128.0
/18	255.255.192.0
/19	255.255.224.0
/20	255.255.240.0
/21	255.255.248.0
/22	255.255.252.0
/23	255.255.254.0
/24	255.255.255.0
/25	255.255.255.128
/26	255.255.255.192
/27	255.255.255.224
/28	255.255.255.240
/29	255.255.255.248
/30	255.255.255.252
/31	255.255.255.254
/32	255.255.255.255

Under ‘Static IP Configuration’ you need to enter your ‘Gateway’ address, this may have been termed ‘Router’ or ‘Default Gateway’.

You may also have to go to the Welcome screen and unlock the Administrator pages to give access to the DNS & Passwords screen where you can enter a DNS server if supplied, or enter the address of a DNS server you wish to use.

Please see the DNS & Passwords section for more information.

SSID, ESSID, BSSID, and ROAMing

The ESSID more often known simply as SSID is the network name an access point uses. Many access points can use the same ESSID.

The BSSID is the MAC address of an access point. A MAC address is a unique number that identifies one access point.

When you click a button to choose a network to logon to Yachtspot enters both the ESSID and BSSID on the advanced screen.

You can choose to ‘Allow roaming’, this is the default where Yachtspot will logon to the ESSID selected. If there are multiple access points with the same ESSID Yachtspot choose’s the one with the strongest signal.

You can also choose ‘Connect to this hotspot [BSSID] only’. Then Yachtspot will only logon to this access point. This can be useful is some situations, for example if the access point with the strongest signal, or the network behind it is having problems. You can force Yachtspot to route through another device.

WPA & WPA2 PSK

Yachtspot supports both WPA, and WPA2 pre shared key modes.

Enable WPA/2 PSK, and enter the pre-shared key. This may be from 8 to 63 case-sensitive ASCII characters (including spaces and symbols).

WEP with open, or shared authentication

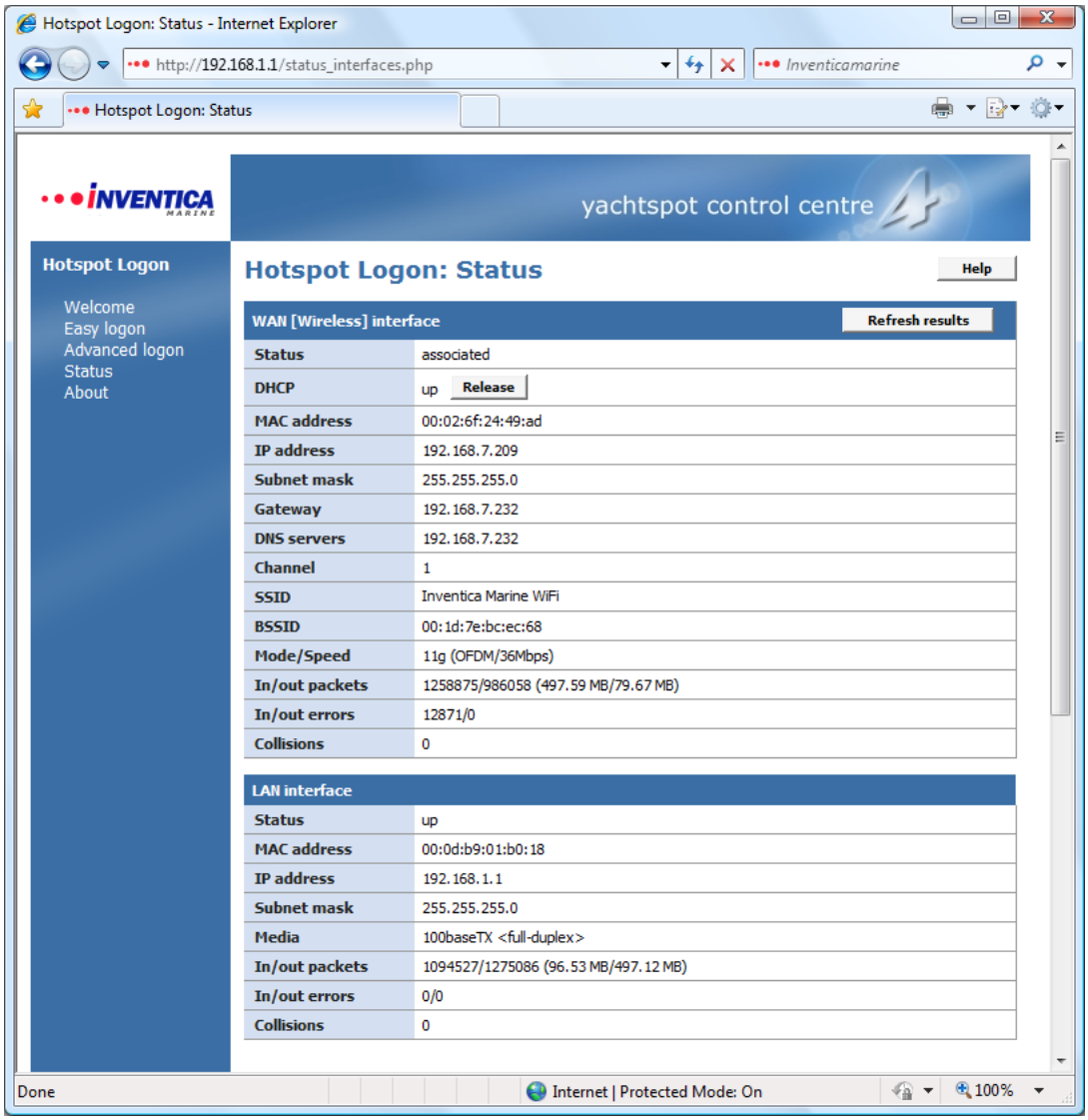
You can select between open, and shared key authentication on the Advanced page.

40 (64) bit keys may be entered as 5 ASCII characters, or 10 hex digits preceded by '0x'.

104 (128) bit keys may be entered as 13 ASCII characters, or 26 hex digits preceded by '0x'.

Status of Yachtspot's interfaces

The status screen provides more detailed information on both the LAN, and WAN interfaces.



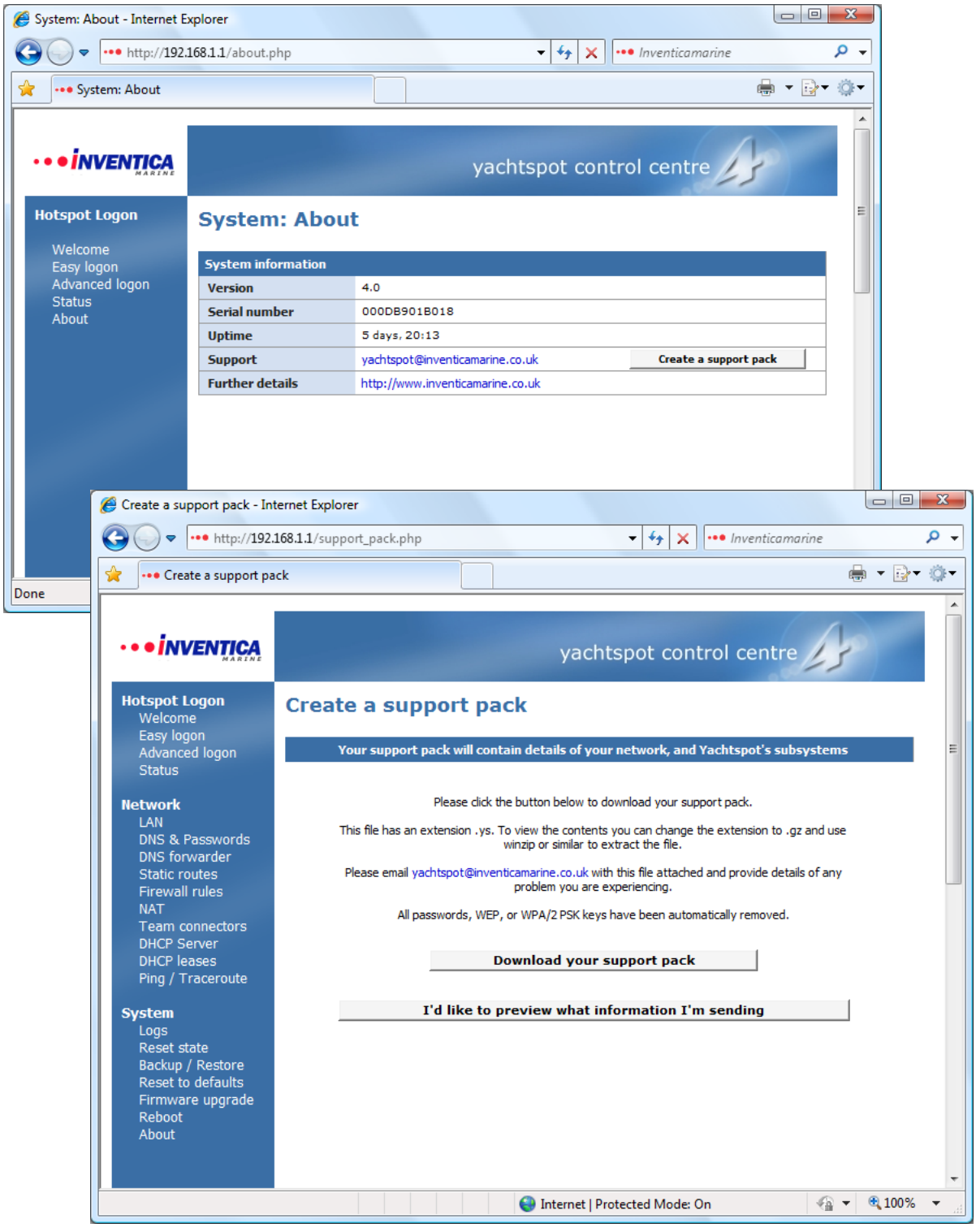
Note: The marina hotspot may require your MAC address if they are using MAC address filtering. You can find it here located under the WAN interface.

Additional information

WAN [Wireless] interface	
Status	associated or no carrier.
DHCP	DHCP client up or down. You can release and renew a lease here.
MAC address	The marina hotspot may require your MAC address if they are using MAC address filtering. You can find it here located under the WAN interface.
IP address	Static or supplied by DHCP.
Subnet mask	Static or supplied by DHCP.
Gateway	Static or supplied by DHCP.
SSID	SSID of your chosen network.
BSSID	MAC address of the access point you are connected to.
Mode/Speed	Mode and speed of transmission negotiated between Yachtspot and the access point.
LAN interface	
Media	Speed and mode of the Ethernet port.

About, version, serial number, & support

This screen displays the firmware version number, serial number, uptime, and support contact details. These contact details are the manufacturer's details. In the first instance support queries should be directed to the installer.



You need administrator access to create a support pack. A support pack provides a comprehensive overview of Yachtspot's sub systems. If you are experiencing problems with Yachtspot please email yachtspot@inventicamarine.co.uk with this file attached and provide details of the problem.

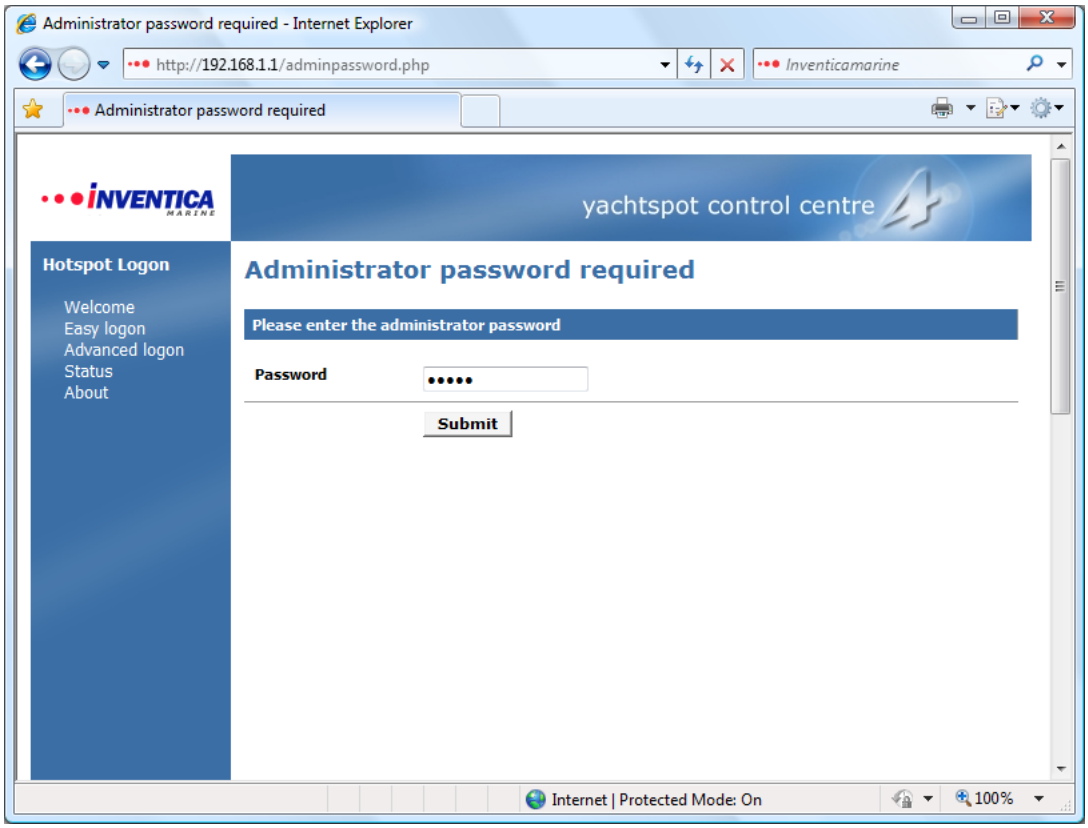
All passwords, WEP, or WPA/2 PSK keys will be automatically removed.

This file has an extension .ys. To view the contents you can change the extension to .gz and use winzip, or similar to extract the file.

You can also preview the contents by clicking the button 'I'd like to preview what information I'm sending'. Installers may find the contents useful for troubleshooting.

Logon to the Administrator pages

The rest of this document relates to screens that are only available after the administrator pages have been unlocked. To unlock these pages go to the welcome screen, and click on the option 'Network & System configuration'. This will display the following page.



Note: The default password is 'admin'.

The Administrator pages - Network configuration

Configuring the LAN Settings

The LAN screen lets you change the IP address of Yachtspot's Ethernet port. The subnet mask is entered in CIDR notation, the dot-decimal notation equivalent is displayed to the right.

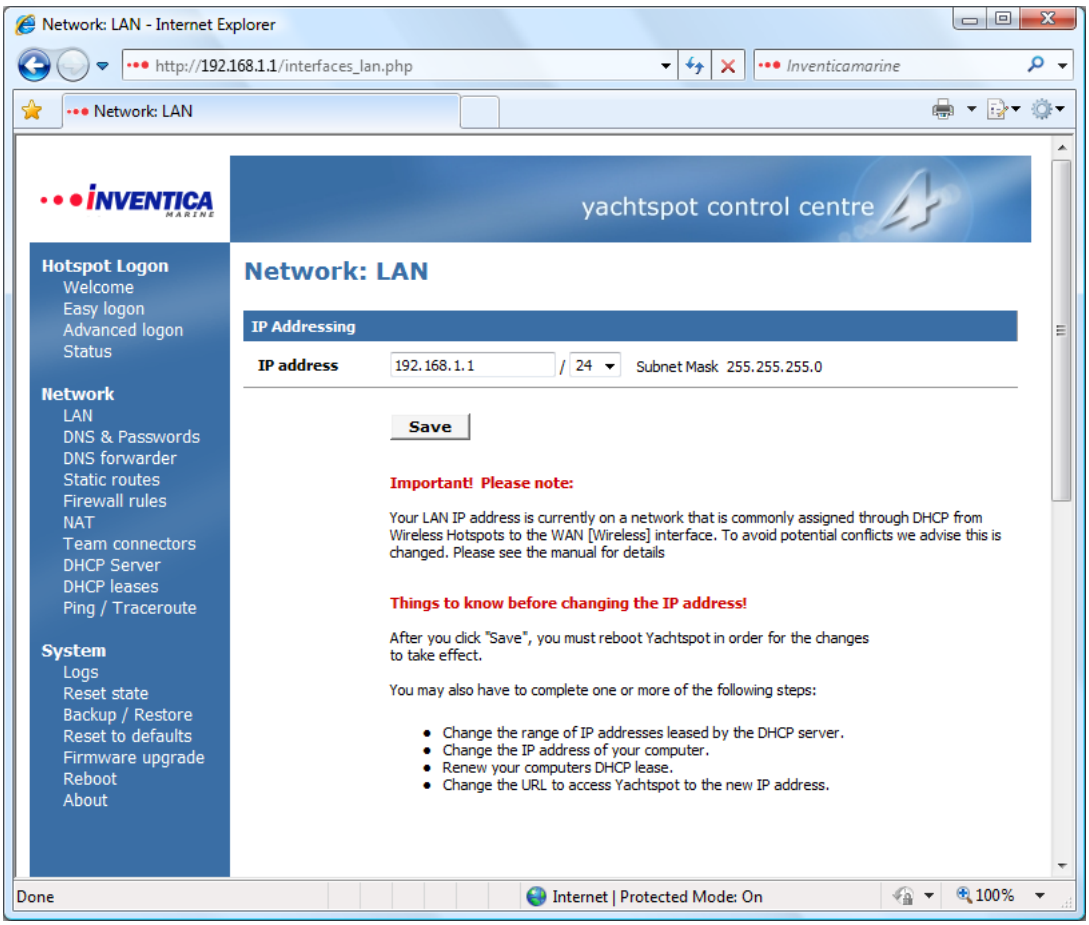
Once you have changed the IP address and clicked the Save button, you must reboot the Yachtspot for the changes to take effect. If the DHCP server is enabled it will be disabled, and you will be prompted to review its settings prior to reboot.

Things to know before changing the IP address!

After you click "Save", you must reboot Yachtspot in order for the changes to take effect.

You may also have to complete one or more of the following steps:

Change the range of IP addresses leased by the DHCP server.
Change the IP address of your computer.
Renew your computers DHCP lease.
Change the URL to access Yachtspot to the new IP address.



Setting your LAN IP address - Our recommendations

You will note on the previous screenshot a warning that 'the LAN IP address is currently on a network that is commonly assigned through DHCP from wireless hotspots to the WAN [Wireless] interface'

Yachtspot provides security to your internal network. It is not a bridge [like a wireless access point] which would share the IP range of the entire marina, but a router which uses 'Network address translation' [NAT]. The internal network on your Yacht will be separated, and firewalled from the marina's network, and have it's own IP range.

Wireless hotspots commonly assign IP addresses through DHCP in the ranges of

192.168.0.0/24
192.168.1.0/24

172.16.0.0/24
172.16.1.0/24

10.0.0.0/24
10.0.1.0/24

If your LAN IP address is on the same network as the DHCP settings supplied by the hotspot, Yachtspot may operate intermittently or fail. This is because the NAT component [router] can only work properly when there are different networks assigned to each interface.

To avoid any problems we recommend you set your internal network to operate on an uncommon network address range, for instance 192.168.56.0/24 or 172.16.67.0/24 etc. That way it's unlikely there will be conflicts with any hotspot networks.

Note: the above ranges are shown as network addresses.

For example: 192.168.56.0/24. This means the complete network. This actually corresponds to a usable address range of 192.168.56.1 – 192.168.56.254

DO NOT USE 192.168.56.0 or 192.168.56.255. These are reserved addresses, one designating the network, the other the broadcast address.

Yachtspot's default LAN IP address 192.168.1.1 is on a common network. We recommend you change it.

Note: The warning message will not be displayed once an uncommon network is set.

DNS & Passwords

This screen allows you to set Yachtspot's DNS settings, including its host and domain name, and the DNS servers it will use.

If 'Allow DNS server list to be overridden by DHCP on WAN' is set, Yachtspot will use the DNS servers provided by the marina hotspot. Yachtspot's DHCP server will supply the Yachtspot's LAN IP address to internal clients as the DNS server if the DNS forwarder is enabled. This means that the client machines will send their DNS requests to Yachtspot which will then relay those requests to the DNS servers.

You can also change the user and administrator passwords here. **Don't forget to write these down and store them safely.**

Network: DNS & Passwords - Internet Explorer
http://192.168.1.1/system.php
Inventicamarine
Network: DNS & Passwords
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
Network
LAN
DNS & Passwords
DNS forwarder
Static routes
Firewall rules
NAT
Team connectors
DHCP Server
DHCP leases
Ping / Traceroute
System
Logs
Reset state
Backup / Restore
Reset to defaults
Firmware upgrade
Reboot
About
Network: DNS & Passwords
DNS name resolution
Hostname
yachtspot
for example yachtspot
Domain
local
for example local, domain.local
DNS servers
These addresses will be used as forwarders, if the DNS forwarder is enabled, and not overidden, see checkbox below.
These addresses will be assigned by the DHCP server to clients on the LAN if the DNS forwarder is disabled.
If you are using a static IP address on the WAN [Wireless] interface, you must specify a DNS server here.
If the DNS forwarder is enabled, DHCP clients on the LAN will be assigned the Yachtspot's LAN IP address, as the DNS server, and Yachtspot will forward DNS requests to these addresses.
The default action is to leave these empty, and allow the forwarder to use the DNS servers assigned by DHCP on the WAN [Wireless] interface. See checkbox below.
Allow the DNS server list to be overridden by DHCP on the WAN
If this option is set, the DNS forwarder, will use the DNS servers assigned by the DHCP server to the WAN [Wireless] interface.
Logon password
Username
admin
If you want to change the username for accessing the browser interface, enter it here.
Password
(confirmation)
To change the password for accessing the browser interface, enter it here twice.
Administrator password
Password
(confirmation)
To change the password for accessing the Administrator only pages, enter it here twice.
Save
Done
Internet | Protected Mode: On
100%

The DNS forwarder

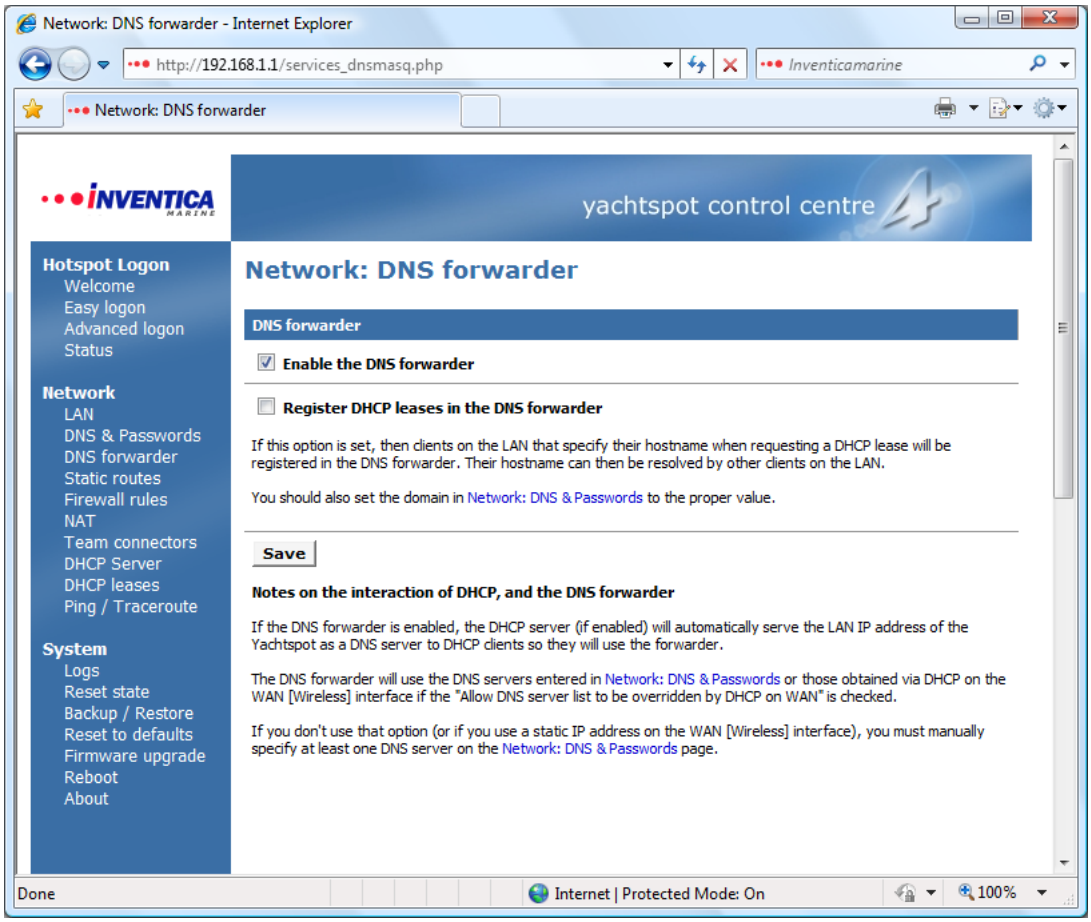
This screen allows you to enable/disable the DNS forwarder.

If you enable the DNS forwarder Yachtspot will resolve DNS queries for your client machines.

If you enable the forwarder Yachtspot's DHCP server will assign the Yachtspot's LAN interface IP address to its clients as their DNS server so that they use the forwarder service.

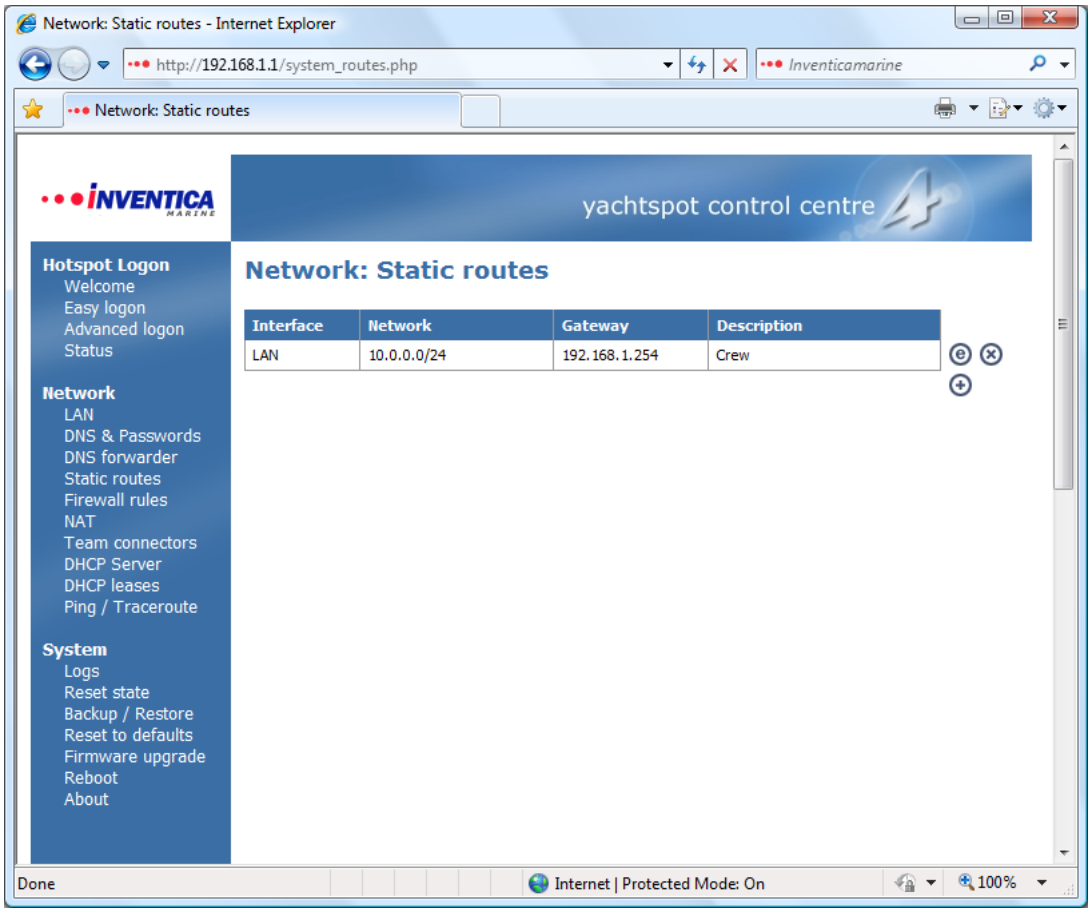
The DNS forwarder will relay DNS requests to the DNS servers set on the DNS & Passwords page unless the 'Allow DNS server list to be overridden by DHCP on WAN' checkbox is selected, in which case the forwarder will forward DNS traffic to the DNS servers specified by the marina hotspot's DHCP server.

On this page you also have the option to register DHCP leases in the DNS forwarder. If client machines specify their hostnames when requesting an IP address from Yachtspot's DHCP server then the DNS forwarder will be able to resolve their names.


Network: DNS forwarder - Internet Explorer
http://192.168.1.1/services_dnsmasq.php
Inventicamarine
Network: DNS forwarder
INVENTICA MARINE
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
Network
LAN
DNS & Passwords
DNS forwarder
Static routes
Firewall rules
NAT
Team connectors
DHCP Server
DHCP leases
Ping / Traceroute
System
Logs
Reset state
Backup / Restore
Reset to defaults
Firmware upgrade
Reboot
About
Network: DNS forwarder
DNS forwarder
Enable the DNS forwarder
Register DHCP leases in the DNS forwarder
If this option is set, then clients on the LAN that specify their hostname when requesting a DHCP lease will be registered in the DNS forwarder. Their hostname can then be resolved by other clients on the LAN.
You should also set the domain in Network: DNS & Passwords to the proper value.
Save
Notes on the interaction of DHCP, and the DNS forwarder
If the DNS forwarder is enabled, the DHCP server (if enabled) will automatically serve the LAN IP address of the Yachtspot as a DNS server to DHCP clients so they will use the forwarder.
The DNS forwarder will use the DNS servers entered in Network: DNS & Passwords or those obtained via DHCP on the WAN [Wireless] interface if the "Allow DNS server list to be overridden by DHCP on WAN" is checked.
If you don't use that option (or if you use a static IP address on the WAN [Wireless] interface), you must manually specify at least one DNS server on the Network: DNS & Passwords page.
Done
Internet | Protected Mode: On
100%

Setting Static Routes

If your internal network is subnetted you can set up static routing to direct packets to other subnets.

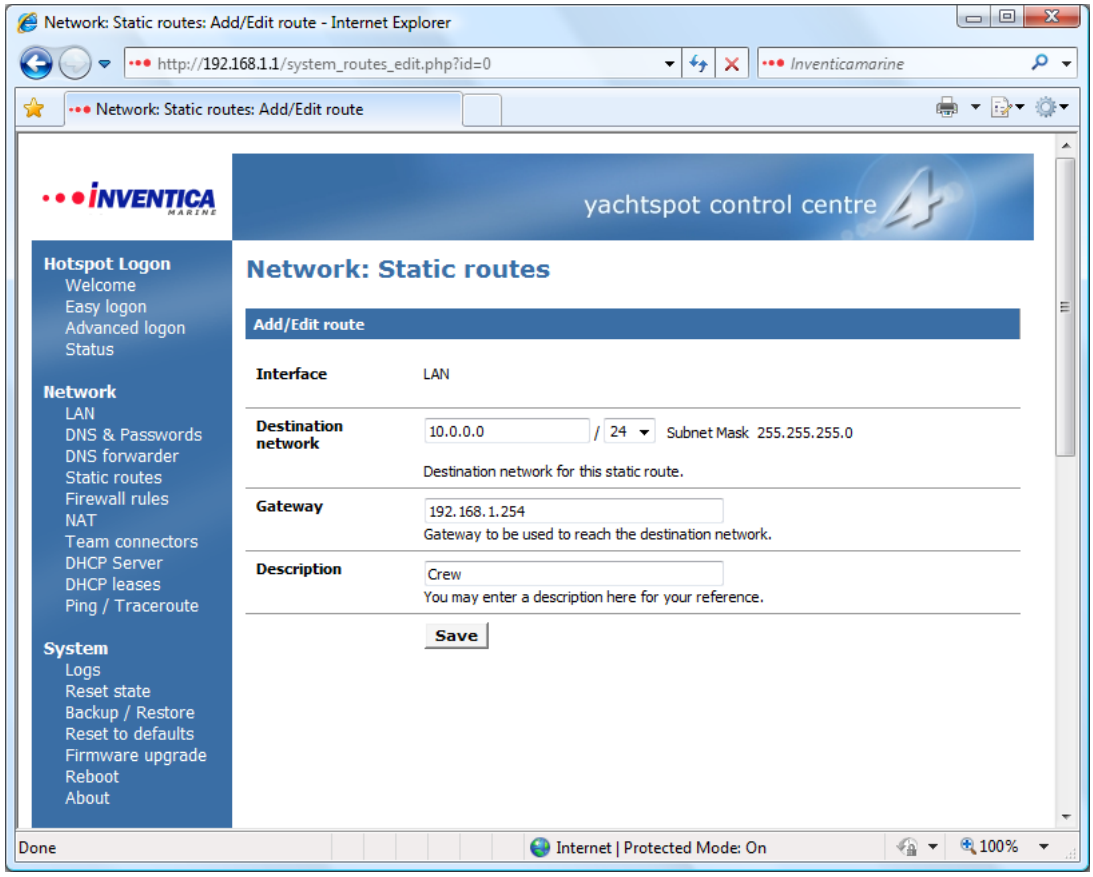


The parameters required to set up a new route are the following:

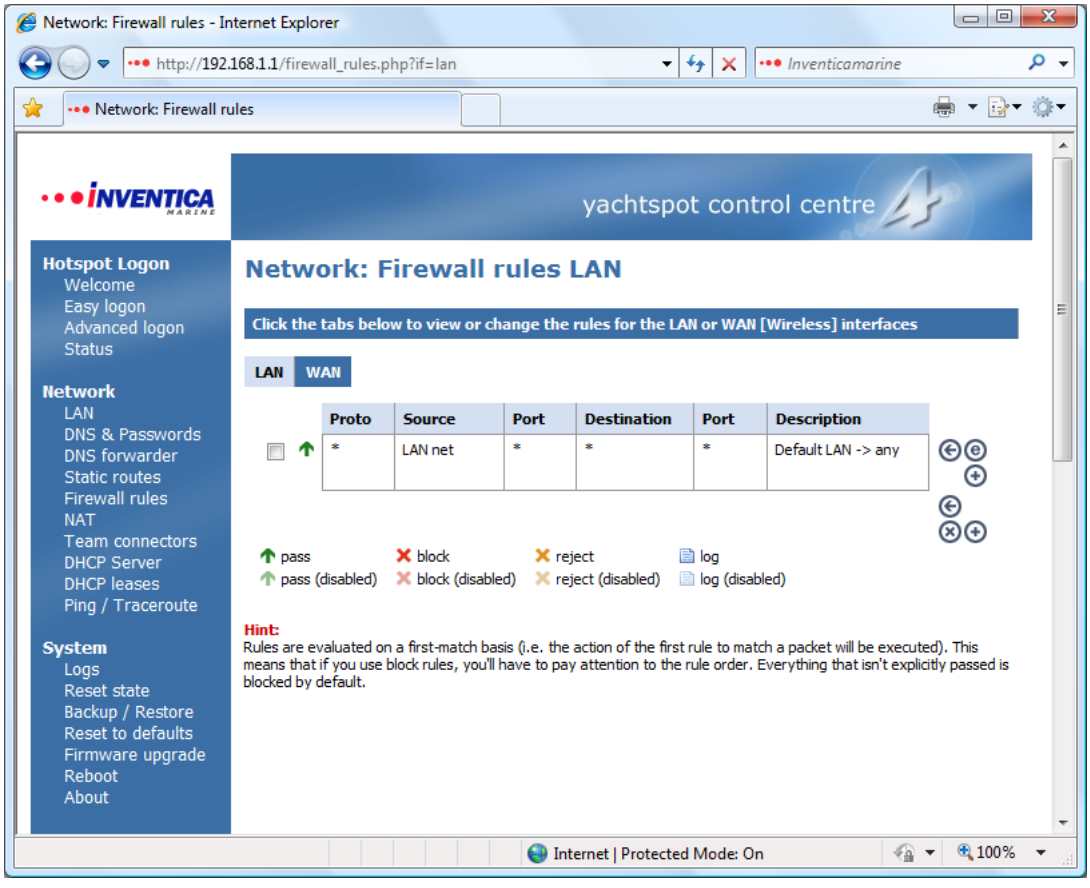
Destination Network: Enter the address of the network you want to reach with its subnet stated in CIDR notation.

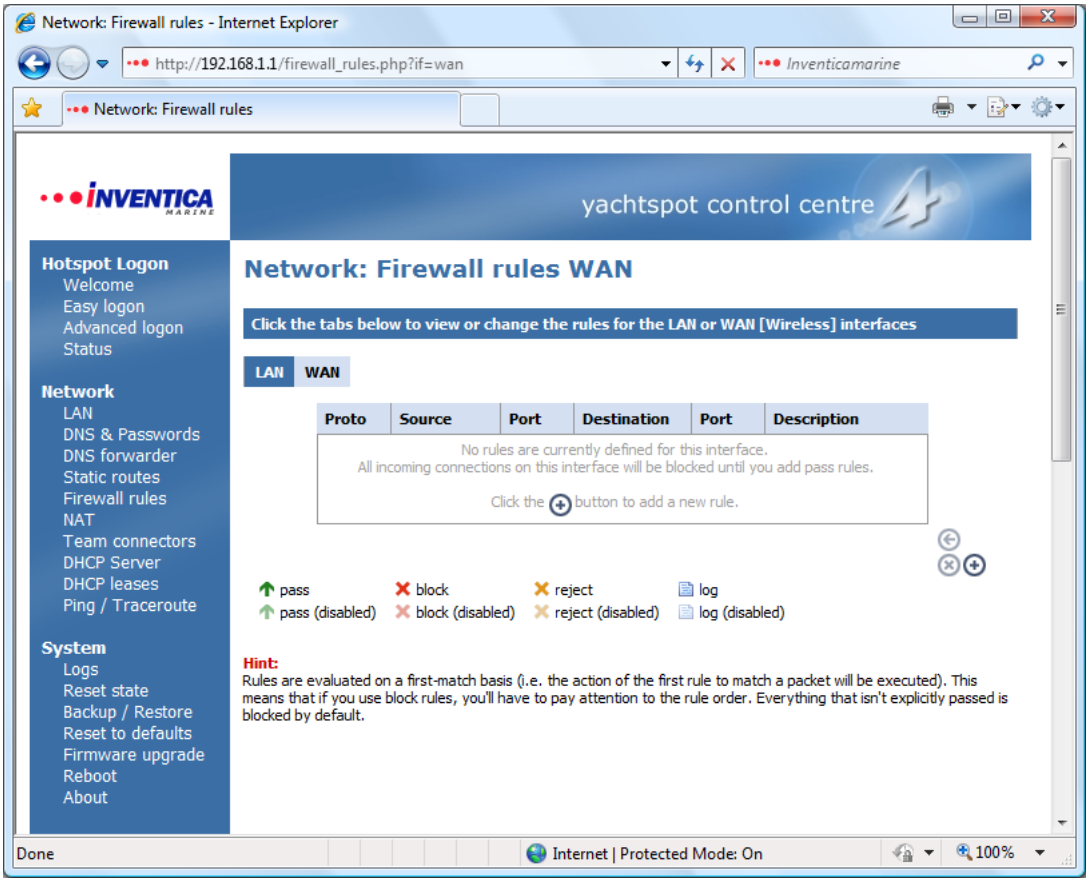
Gateway: The IP address of the gateway that packets must use in order to reach the Destination Network.

Description: Enter an optional description for the route.



Firewall Rules for the LAN and WAN





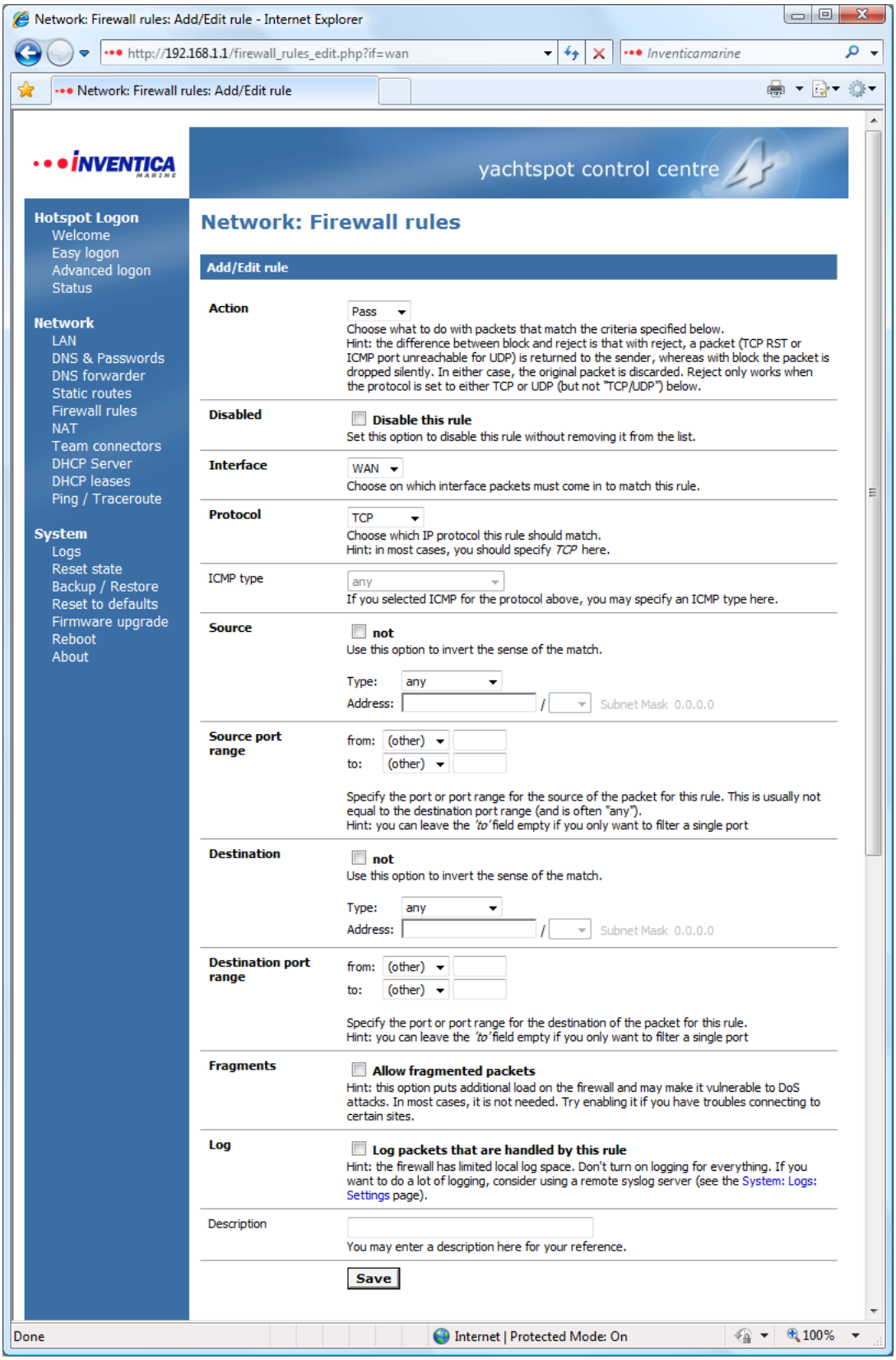
Note: Click the LAN or WAN tab to set rules for a particular interface.

These screens allow you to set your firewall rules. By default Yachtspot will allow any traffic out from the boat's network to the marina network but won't allow any traffic into the boat from outside unless it is in response to a request.

By clicking on the relevant icon you can add, edit, delete, or move a rule up or down in the table. Rules are evaluated on a first match basis, so if you are using blocking rules you need to pay attention to the order they appear in the table.

Any traffic that is not explicitly passed by a rule will be blocked.

Clicking add, or edit a rule shows the following screen.

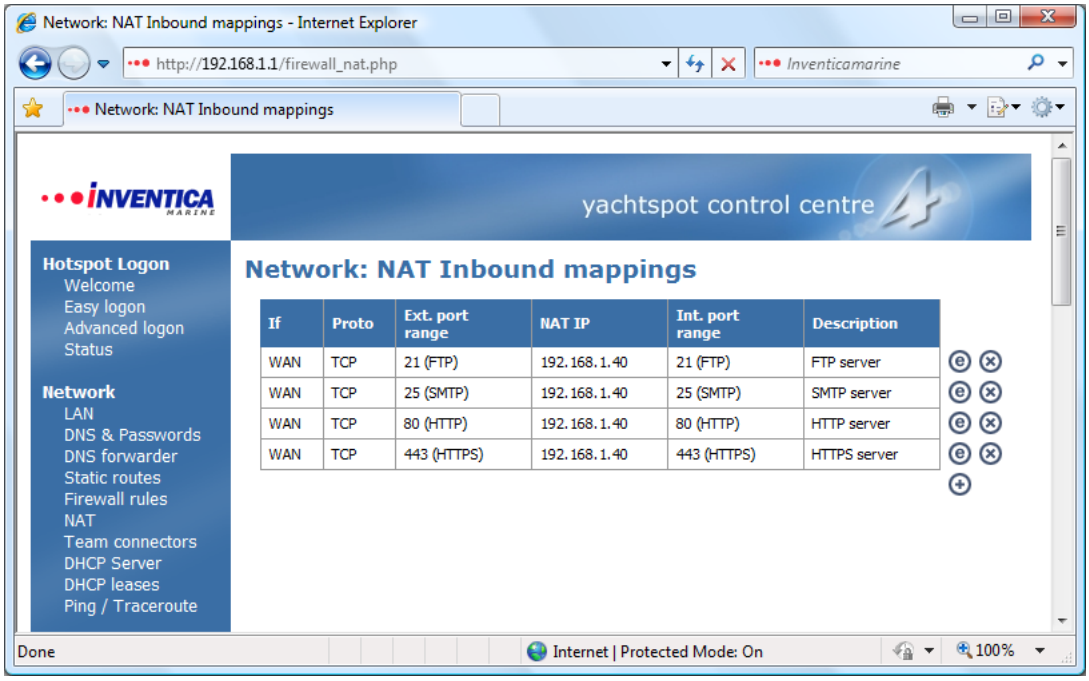

Network: Firewall rules: Add/Edit rule - Internet Explorer
http://192.168.1.1/firewall_rules_edit.php?if=wan
Inventicamarine
Network: Firewall rules: Add/Edit rule
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
Network
LAN
DNS & Passwords
DNS forwarder
Static routes
Firewall rules
NAT
Team connectors
DHCP Server
DHCP leases
Ping / Traceroute
System
Logs
Reset state
Backup / Restore
Reset to defaults
Firmware upgrade
Reboot
About
Network: Firewall rules
Add/Edit rule
Action
Pass
Choose what to do with packets that match the criteria specified below.
Hint: the difference between block and reject is that with reject, a packet (TCP RST or ICMP port unreachable for UDP) is returned to the sender, whereas with block the packet is dropped silently. In either case, the original packet is discarded. Reject only works when the protocol is set to either TCP or UDP (but not "TCP/UDP") below.
Disabled
Disable this rule
Set this option to disable this rule without removing it from the list.
Interface
WAN
Choose on which interface packets must come in to match this rule.
Protocol
TCP
Choose which IP protocol this rule should match.
Hint: in most cases, you should specify TCP here.
ICMP type
any
If you selected ICMP for the protocol above, you may specify an ICMP type here.
Source
not
Use this option to invert the sense of the match.
Type:
any
Address:
Subnet Mask 0.0.0.0
Source port range
from:
(other)
to:
(other)
Specify the port or port range for the source of the packet for this rule. This is usually not equal to the destination port range (and is often "any").
Hint: you can leave the 'to' field empty if you only want to filter a single port
Destination
not
Use this option to invert the sense of the match.
Type:
any
Address:
Subnet Mask 0.0.0.0
Destination port range
from:
(other)
to:
(other)
Specify the port or port range for the destination of the packet for this rule.
Hint: you can leave the 'to' field empty if you only want to filter a single port
Fragments
Allow fragmented packets
Hint: this option puts additional load on the firewall and may make it vulnerable to DoS attacks. In most cases, it is not needed. Try enabling it if you have troubles connecting to certain sites.
Log
Log packets that are handled by this rule
Hint: the firewall has limited local log space. Don't turn on logging for everything. If you want to do a lot of logging, consider using a remote syslog server (see the System: Logs: Settings page).
Description
You may enter a description here for your reference.
Save
Done
Internet | Protected Mode: On
100%

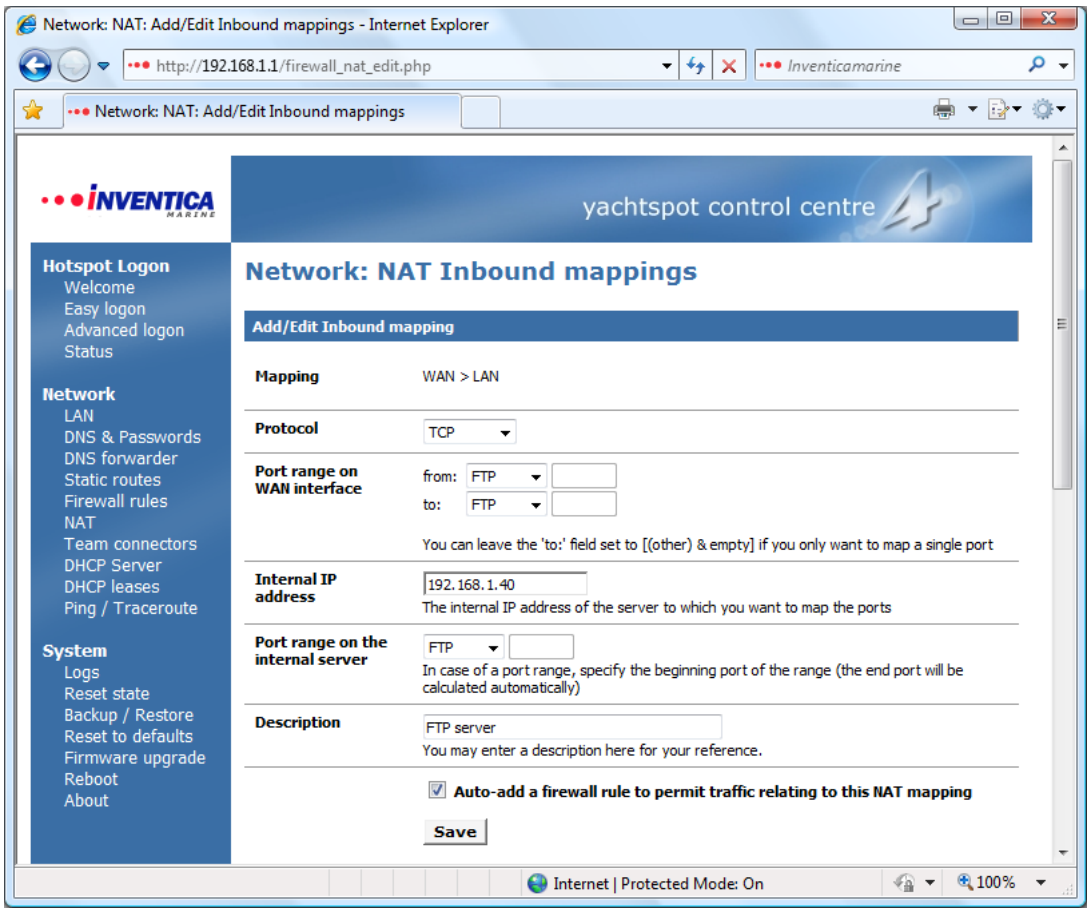
This screen allows you to define a rule using the following parameters:

Action:	This allows you to choose what to do with a packet that matches your criteria. Block, Pass, or Reject. Pass allows the packet through, Block silently drops the packet and Reject sends a reject packet to the sender.
Disabled:	This allows you to disable a rule but still leave it in the list.
Interface:	This sets the interface that a packet must arrive on to be matched to this rule
Protocol:	This allows you to set which IP protocol the rule will match.
Source:	This allows you to specify the IP address of the source of the packet to match.
Source port range:	This allows you to specify the source port or range of ports the packet must come from in order to match this rule. If you only wish to match a single port then you may leave the 'to' field empty
Destination:	Specifies the destination IP address of the packets that will match this rule.
Destination port range:	This allows you to specify the destination port or range of ports the packet must be going to, in order to match this rule. If you only wish to match a single port then you may leave the 'to' field empty
Fragments:	By using this option you can leave the Yachtspot open to Denial of Service attacks and shouldn't normally be used. Only use this if you are having trouble connecting to a specific site.
Log:	This makes Yachtspot log all packets that match this rule. Yachtspot only has very limited space for logs, so only use this option for debugging. If you wish to collect detailed logs then direct Yachtspot's logs to a Syslog server. This is setup on the Logs/Settings page.
Description:	Enter an optional description for your rule.

Configuring NAT inbound mapping

NAT (Network Address Translation) inbound mapping allows you to map an external address to an internal address. A common use for this option is to allow access to an internal web server, or ftp server.



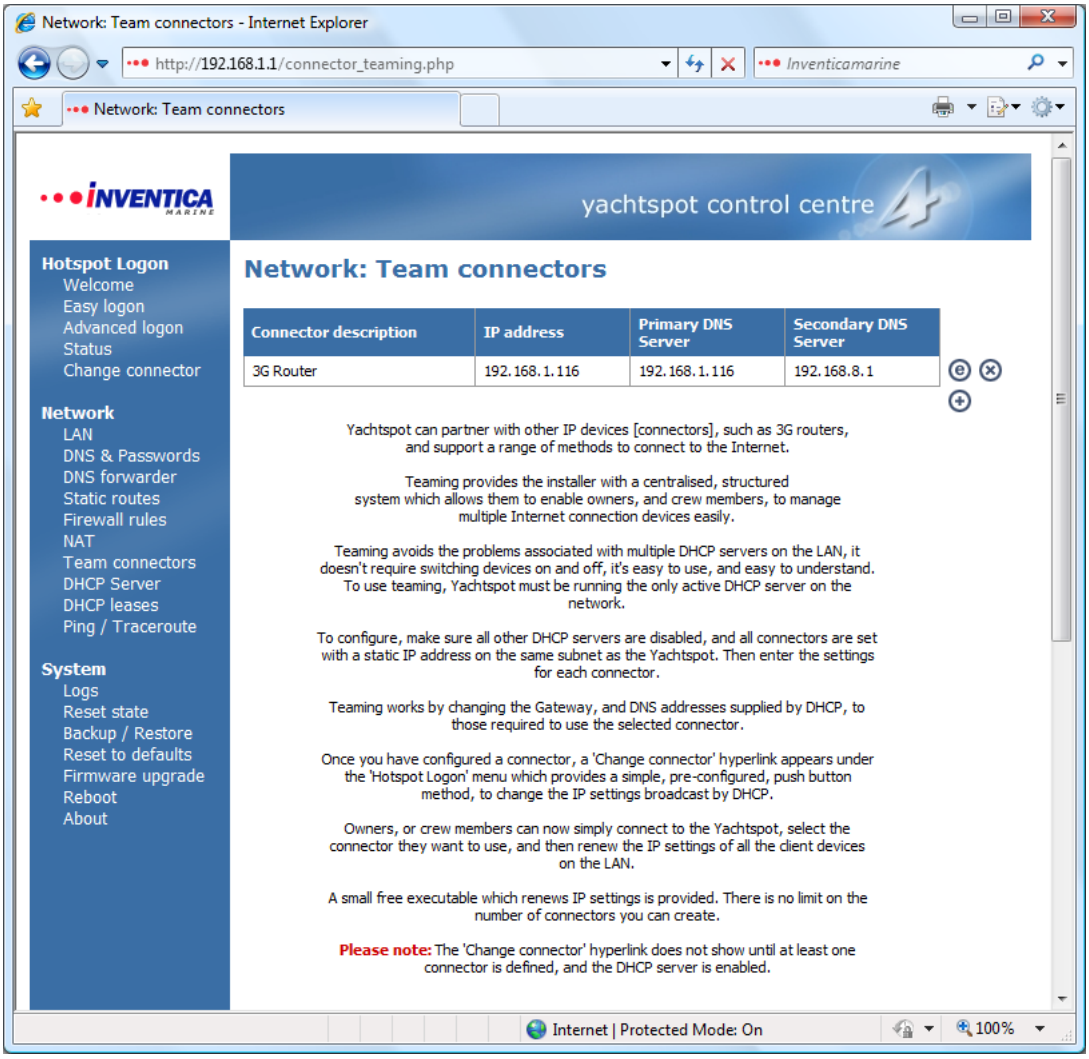


Protocol:	Select the protocol that you want to map, TCP, UDP, or both.
Port range on WAN interface:	Define which port or ports you want to map. If you only want to map a single port then you can leave the 'to' field set to 'other'
Internal IP address:	This is the IP address of the machine you want the traffic forwarded to.
Port range on the internal server:	Define the starting port number (or the port) you want forwarded traffic sent to. If you mapped a range of ports in the "Port range on WAN interface" dialogue then Yachtspot will automatically calculate the range from the starting port number you enter here.
Description:	An optional description for the rule.
Auto-add a firewall rule to permit traffic relating to this NAT mapping:	When you add any NAT mapping you also need to allow the traffic through the firewall. If you check this box then Yachtspot will automatically add the necessary rules to the firewall for you. If you don't check this box you will need to add your own rules before you can use your NAT mapping.

Working with other Internet connection devices

Team Connectors

Yachtspot can partner with other IP devices [connectors], such as 3G routers, and support a range of methods to connect to the Internet.

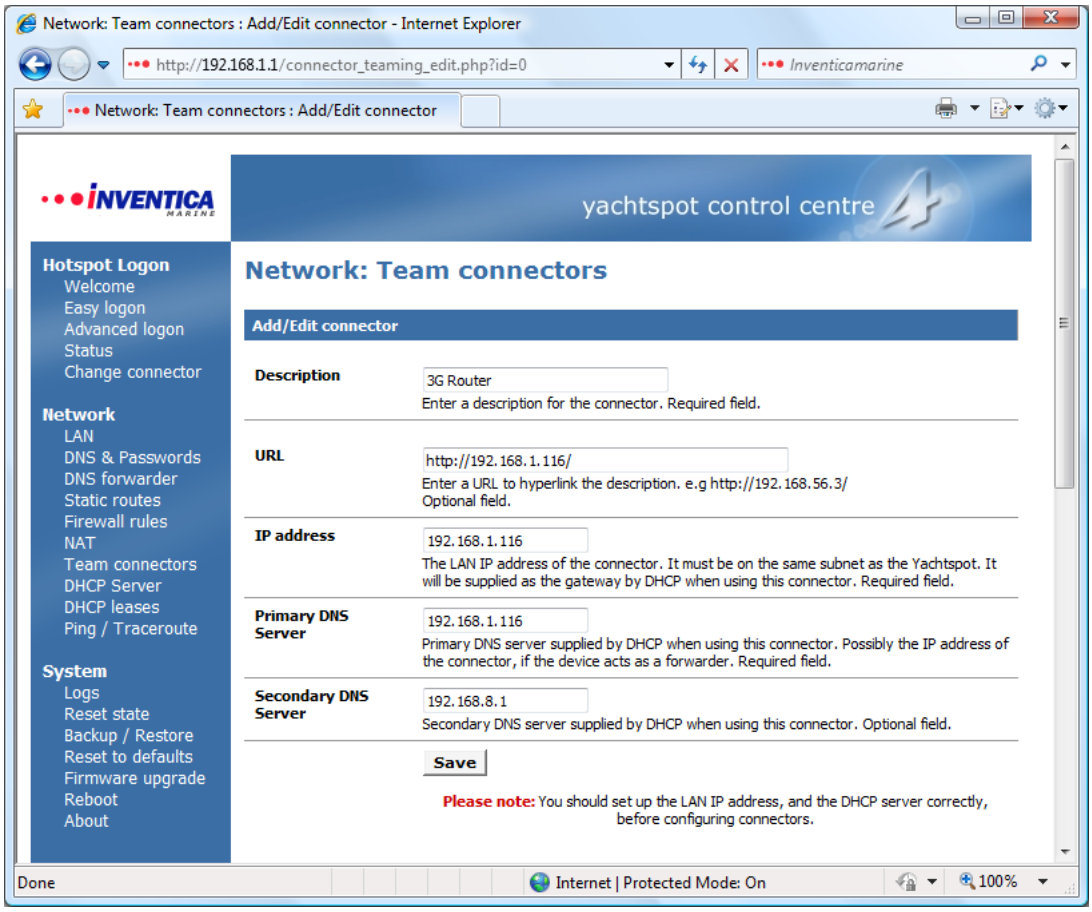

Network: Team connectors - Internet Explorer
http://192.168.1.1/connector_teaming.php
Inventicamarine
Network: Team connectors
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
Change connector
Network
LAN
DNS & Passwords
DNS forwarder
Static routes
Firewall rules
NAT
Team connectors
DHCP Server
DHCP leases
Ping / Traceroute
System
Logs
Reset state
Backup / Restore
Reset to defaults
Firmware upgrade
Reboot
About
Network: Team connectors
Connector description
IP address
Primary DNS Server
Secondary DNS Server
3G Router
192.168.1.116
192.168.1.116
192.168.8.1
Yachtspot can partner with other IP devices [connectors], and support a range of methods to connect to the Internet.
Teaming provides the installer with a centralised, structured system which allows them to enable owners, and crew members, to manage multiple Internet connection devices easily.
Teaming avoids the problems associated with multiple DHCP servers on the LAN, it doesn't require switching devices on and off, it's easy to use, and easy to understand. To use teaming, Yachtspot must be running the only active DHCP server on the network.
To configure, make sure all other DHCP servers are disabled, and all connectors are set with a static IP address on the same subnet as the Yachtspot. Then enter the settings for each connector.
Teaming works by changing the Gateway, and DNS addresses supplied by DHCP, to those required to use the selected connector.
Once you have configured a connector, a 'Change connector' hyperlink appears under the 'Hotspot Logon' menu which provides a simple, pre-configured, push button method, to change the IP settings broadcast by DHCP.
Owners, or crew members can now simply connect to the Yachtspot, select the connector they want to use, and then renew the IP settings of all the client devices on the LAN.
A small free executable which renews IP settings is provided. There is no limit on the number of connectors you can create.
Please note: The 'Change connector' hyperlink does not show until at least one connector is defined, and the DHCP server is enabled.
Internet | Protected Mode: On
100%

To configure, make sure all other DHCP servers on the network are disabled, and all connectors are set with a static IP address on the same subnet as the Yachtspot, then enter the settings for each connector.

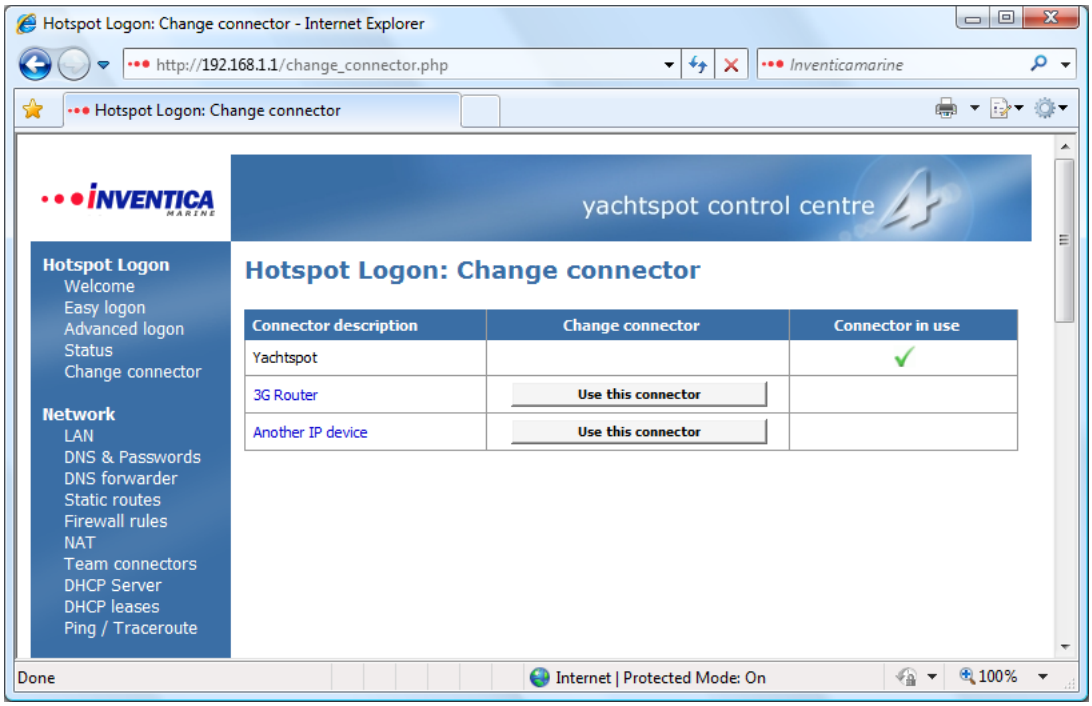
Teaming works by changing the Gateway, and DNS addresses supplied by DHCP, to those required to use the selected connector.

A small free executable which renews IP settings on Windows clients is provided. There is no limit on the number of connectors you can create.

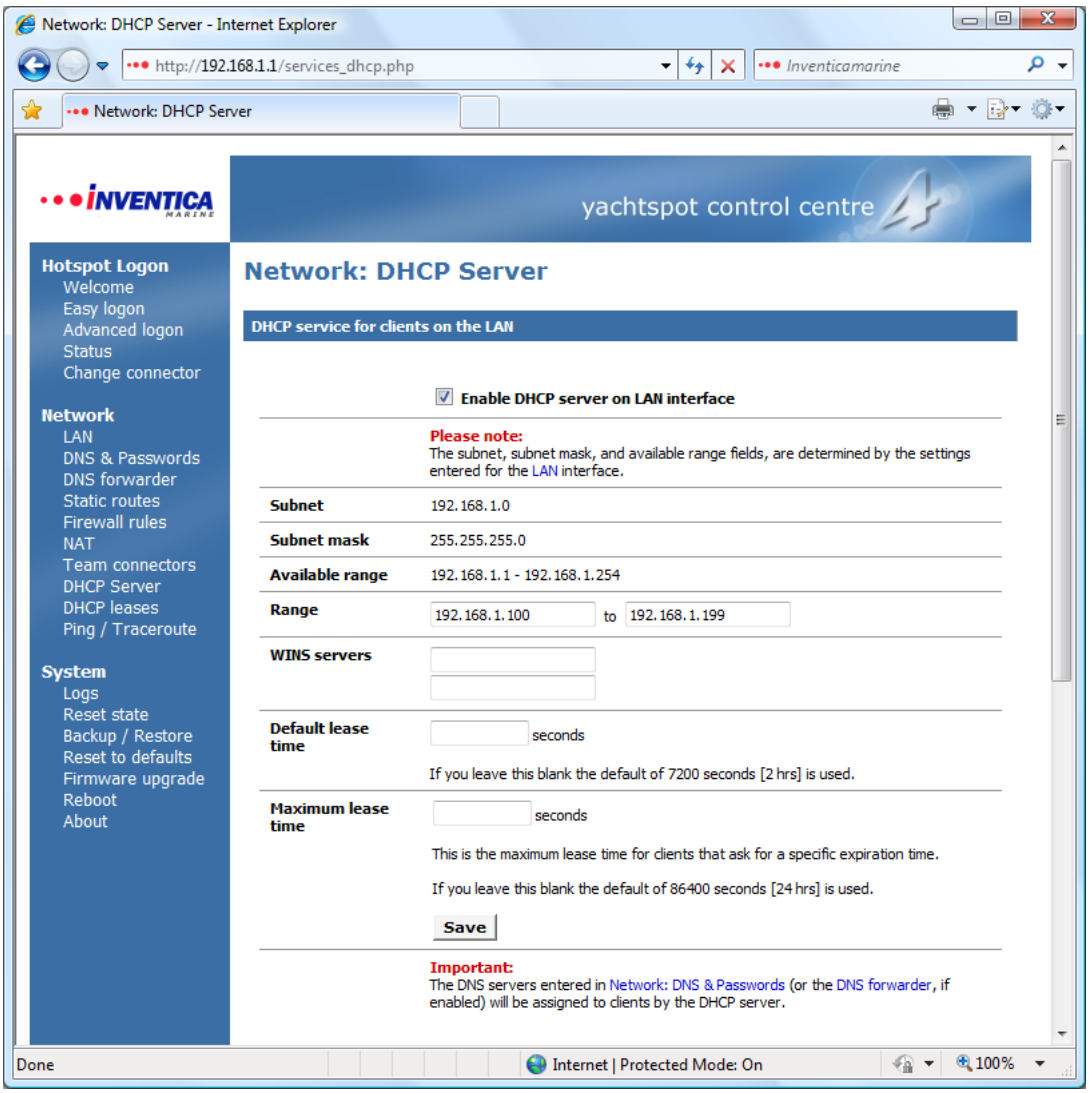
Please note: The 'Change connector' hyperlink does not show until at least one connector is defined, and the DHCP server is enabled.



Once you have configured a connector, a 'Change connector' hyperlink appears under the 'Hotspot Logon' menu which provides a simple, pre-configured, push button method, to change the IP settings broadcast by DHCP.



Configuring the DHCP Server



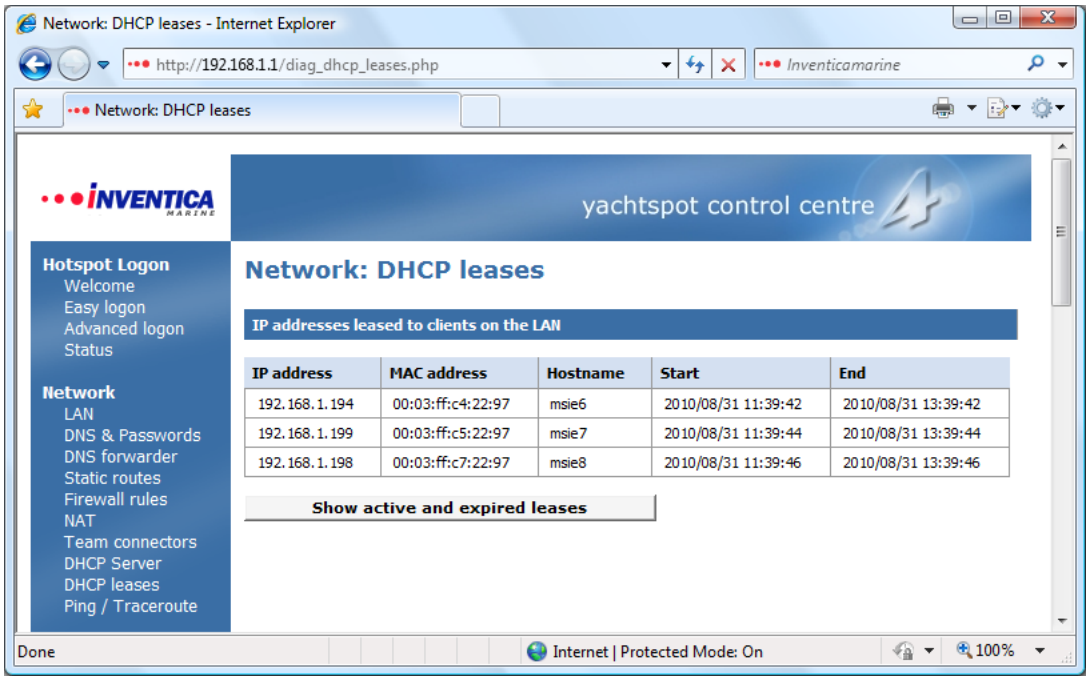
The subnet, subnet mask and available range fields, are determined by the settings entered for the LAN interface.

Range:	Set the IP address range that the DHCP server will assign to clients on the network. If you change your LAN settings and you are running the DHCP server you must change the range accordingly.
WINS servers:	Allows you to enter the Primary and Secondary WINS server addresses assigned to client machines.
Default lease time:	Set in seconds. The default time is 2 hrs (7200).
Maximum lease time:	Set in seconds. The default time is 24 hrs (86400).

The DNS servers entered in Network: DNS & Passwords (or the DNS forwarder, if enabled) will be assigned to clients by the DHCP server.

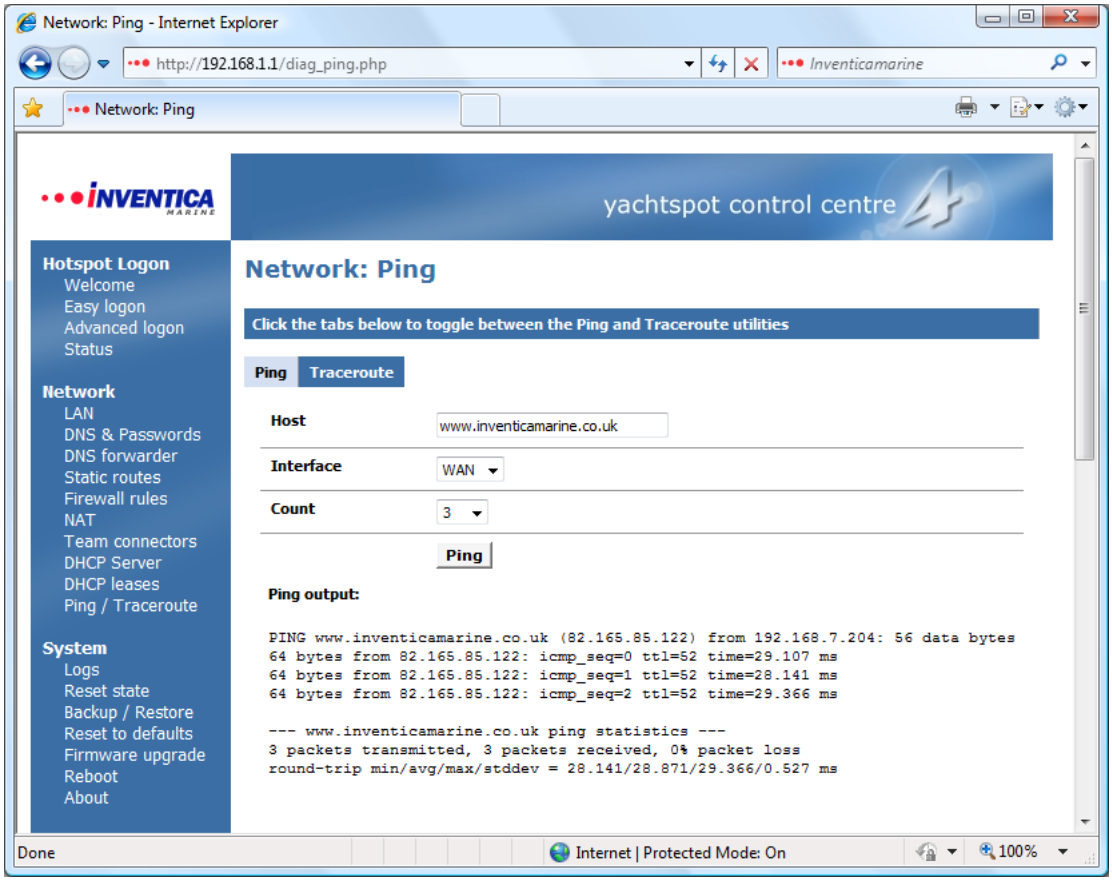
Viewing DHCP leases

This screen shows details of any DHCP leases and can be toggled to show either active, or active and expired leases.



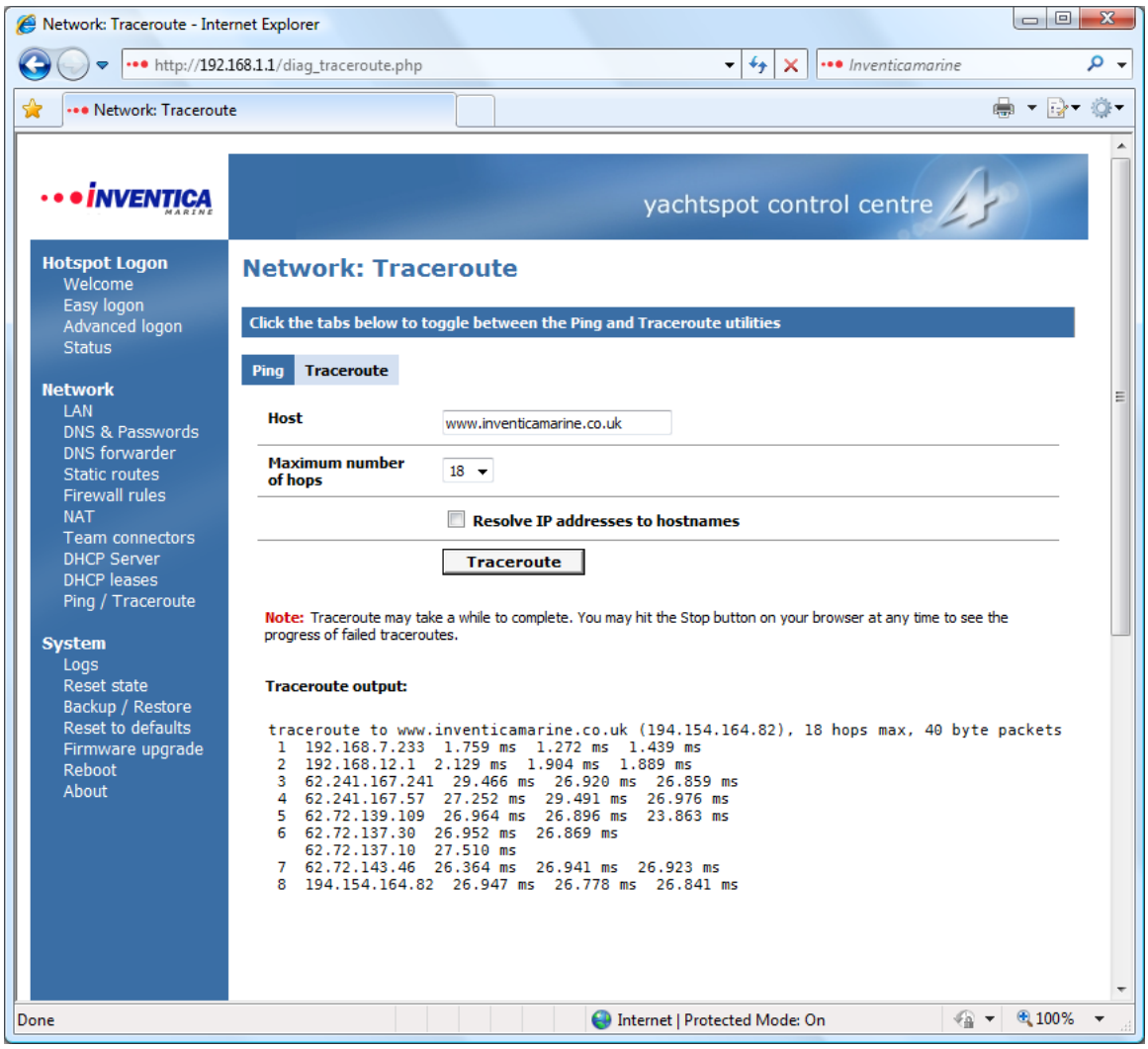
Checking network connectivity with Ping

A useful diagnostic tool for checking IP connectivity between the Yachtspot, and a host on the LAN or WAN.



Checking network connectivity with Traceroute

Another useful diagnostic tool for checking IP connectivity and routing between the Yachtspot and a host on the WAN.



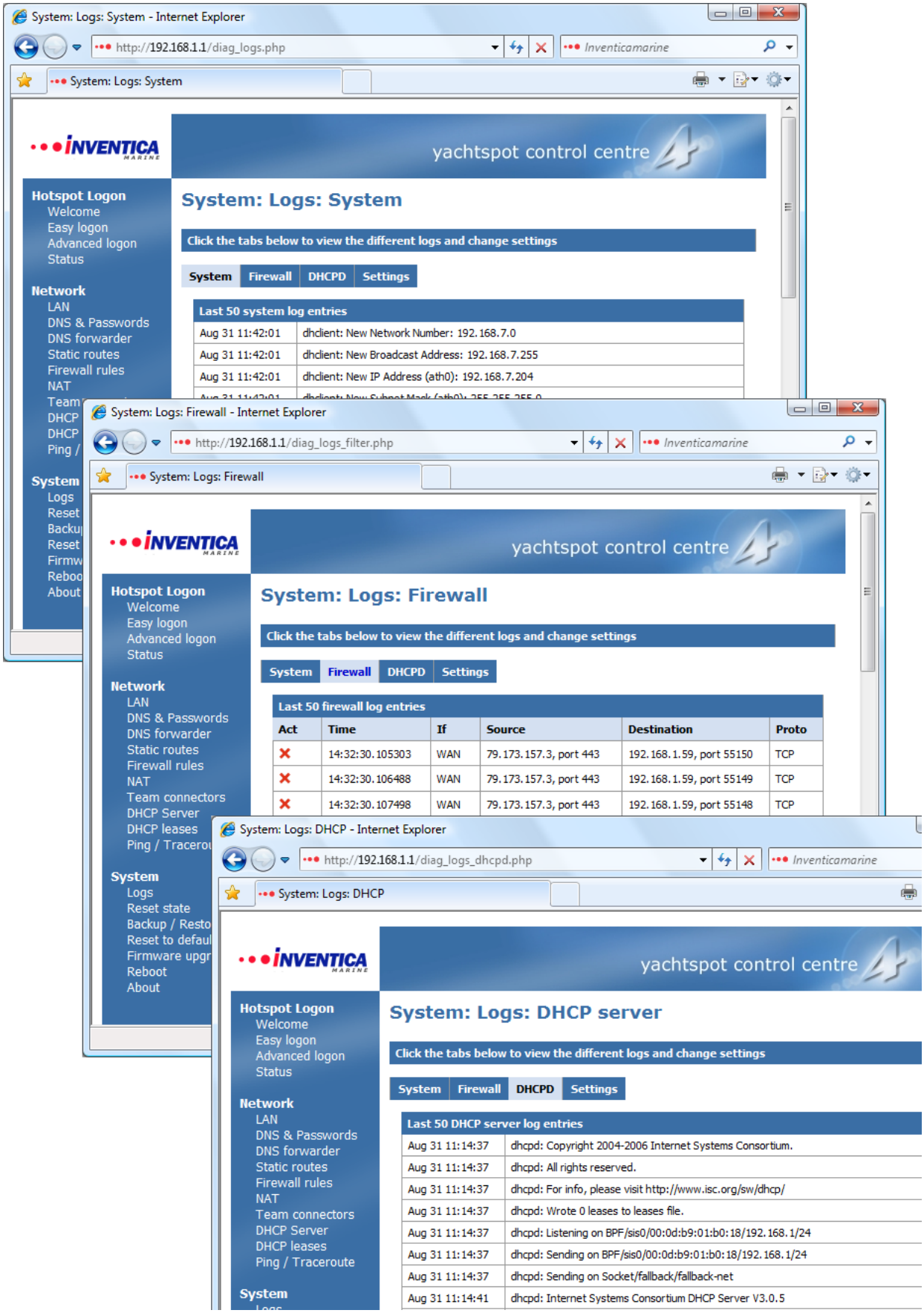
Maximum number of hops - Failed traceroutes will take longer to complete, the greater the number of hops selected.

Resolve IP addresses to hostnames - This option will greatly increase the time taken to complete a traceroute.

You may hit the Stop button on your browser at any time to see the progress of failed traceroutes.

The Administrator pages - System configuration

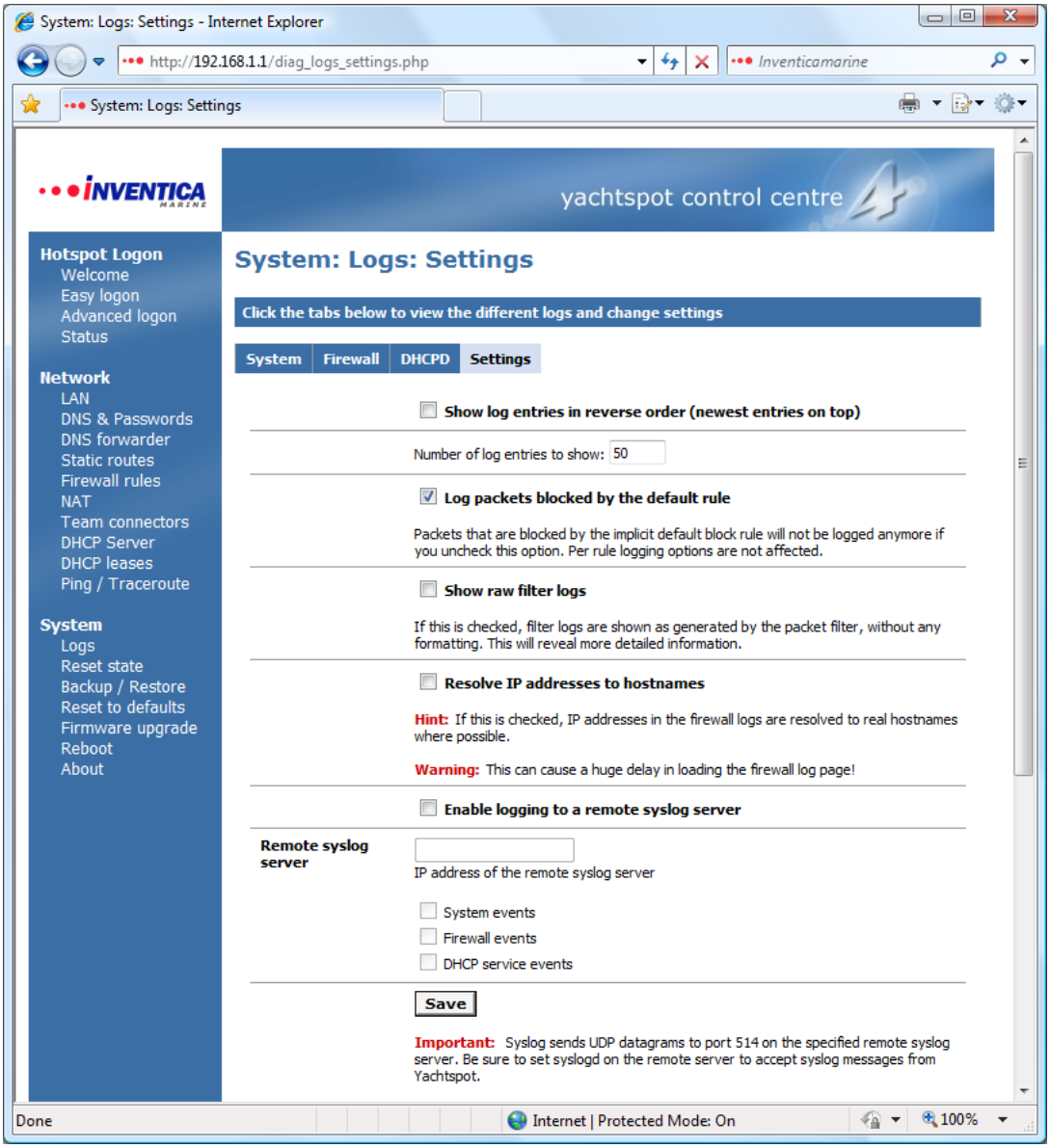
Viewing Yachtspot's Logs



The System log shows messages from Yachtspot's sub systems. It also shows messages from the DHCP client on the WAN interface.

The DHCPD log shows messages from the DHCP server [if running] on Yachtspot.

The Firewall log screen is highly configurable, and able to filter messages. For example, to filter for accepted or denied IP packets only, just click on the accept or deny symbol. Do the same for the desired interface, source/destination port or protocol. To deselect a selected filter just click on the column description. To reset all filter entries and reload the firewall logs page, click on the "Firewall" tab.


System: Logs: Settings - Internet Explorer
http://192.168.1.1/diag_logs_settings.php
Inventicamarine
System: Logs: Settings
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
Network
LAN
DNS & Passwords
DNS forwarder
Static routes
Firewall rules
NAT
Team connectors
DHCP Server
DHCP leases
Ping / Traceroute
System
Logs
Reset state
Backup / Restore
Reset to defaults
Firmware upgrade
Reboot
About
System: Logs: Settings
Click the tabs below to view the different logs and change settings
System
Firewall
DHCPD
Settings
Show log entries in reverse order (newest entries on top)
Number of log entries to show: 50
Log packets blocked by the default rule
Packets that are blocked by the implicit default block rule will not be logged anymore if you uncheck this option. Per rule logging options are not affected.
Show raw filter logs
If this is checked, filter logs are shown as generated by the packet filter, without any formatting. This will reveal more detailed information.
Resolve IP addresses to hostnames
Hint: If this is checked, IP addresses in the firewall logs are resolved to real hostnames where possible.
Warning: This can cause a huge delay in loading the firewall log page!
Enable logging to a remote syslog server
Remote syslog server
IP address of the remote syslog server
System events
Firewall events
DHCP service events
Save
Important: Syslog sends UDP datagrams to port 514 on the specified remote syslog server. Be sure to set syslogd on the remote server to accept syslog messages from Yachtspot.
Done
Internet | Protected Mode: On
100%

The settings tab allows you to configure how the logs are displayed, and also allows you to set up logging to a syslog server. Syslog sends UDP datagrams on port 514.

If you require detailed debugging, especially of the firewall rules, then it is advisable to use a syslog server as Yachtspot has limited space for holding logs.

Resetting the firewall, and NAT state tables

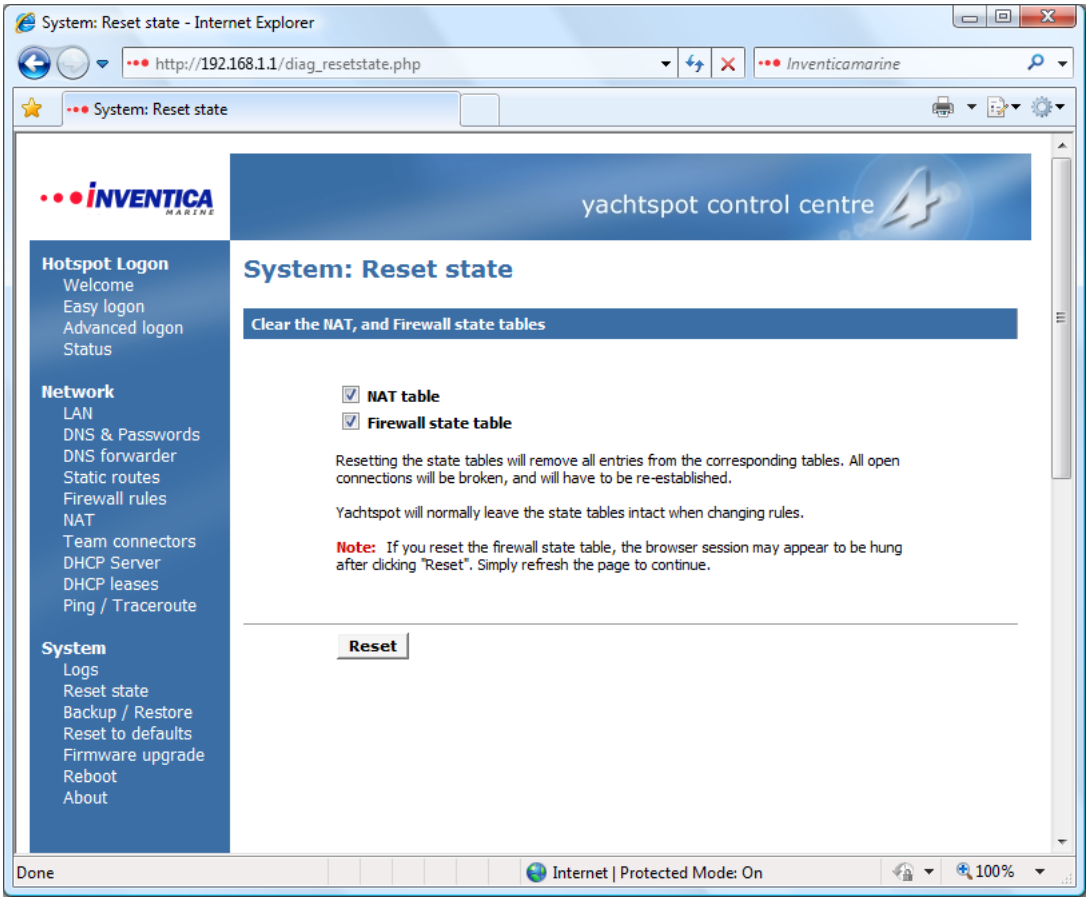
This screen allows you to reset both the firewall, and NAT state tables either individually or as a pair.

The firewall and NAT server keep tables of outgoing, and incoming traffic. These fill memory but are usually cleared automatically by the system.

This action will close all active connections. They will have to be re-established after the reset.

Yachtspot will normally leave the state tables intact when changing rules.

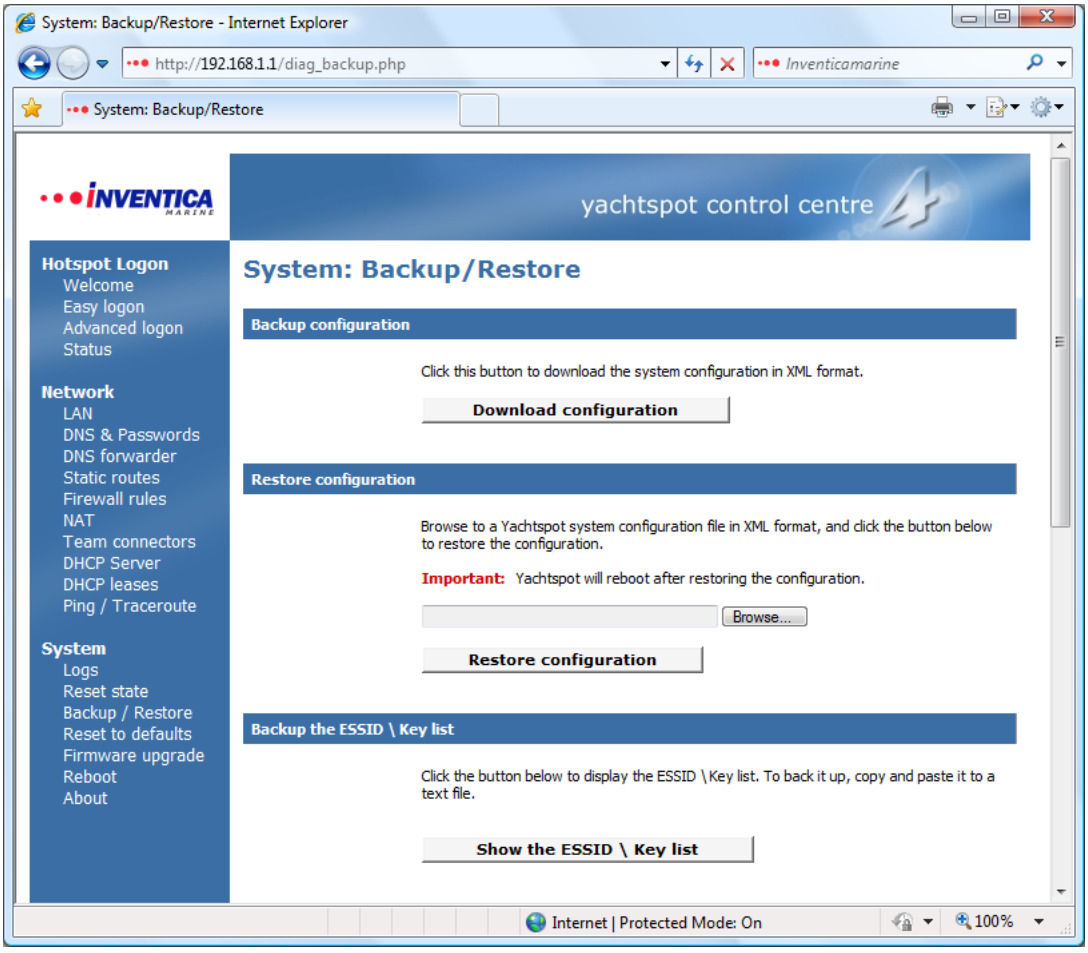
If you reset the firewall state table, the browser session may appear to be hung after clicking "Reset". Simply refresh the page to continue.



Backing up, and restoring Yachtspot's configuration

Yachtspot's entire configuration can be saved to an xml file. You can reload Yachtspot's configuration from a saved xml file. If you restore a configuration file, Yachtspot will reboot.

We recommend you save your configuration after the original set up, and after any subsequent changes.



You can backup the ESSID \ Key list here. To back it up, copy and paste it to a text file.

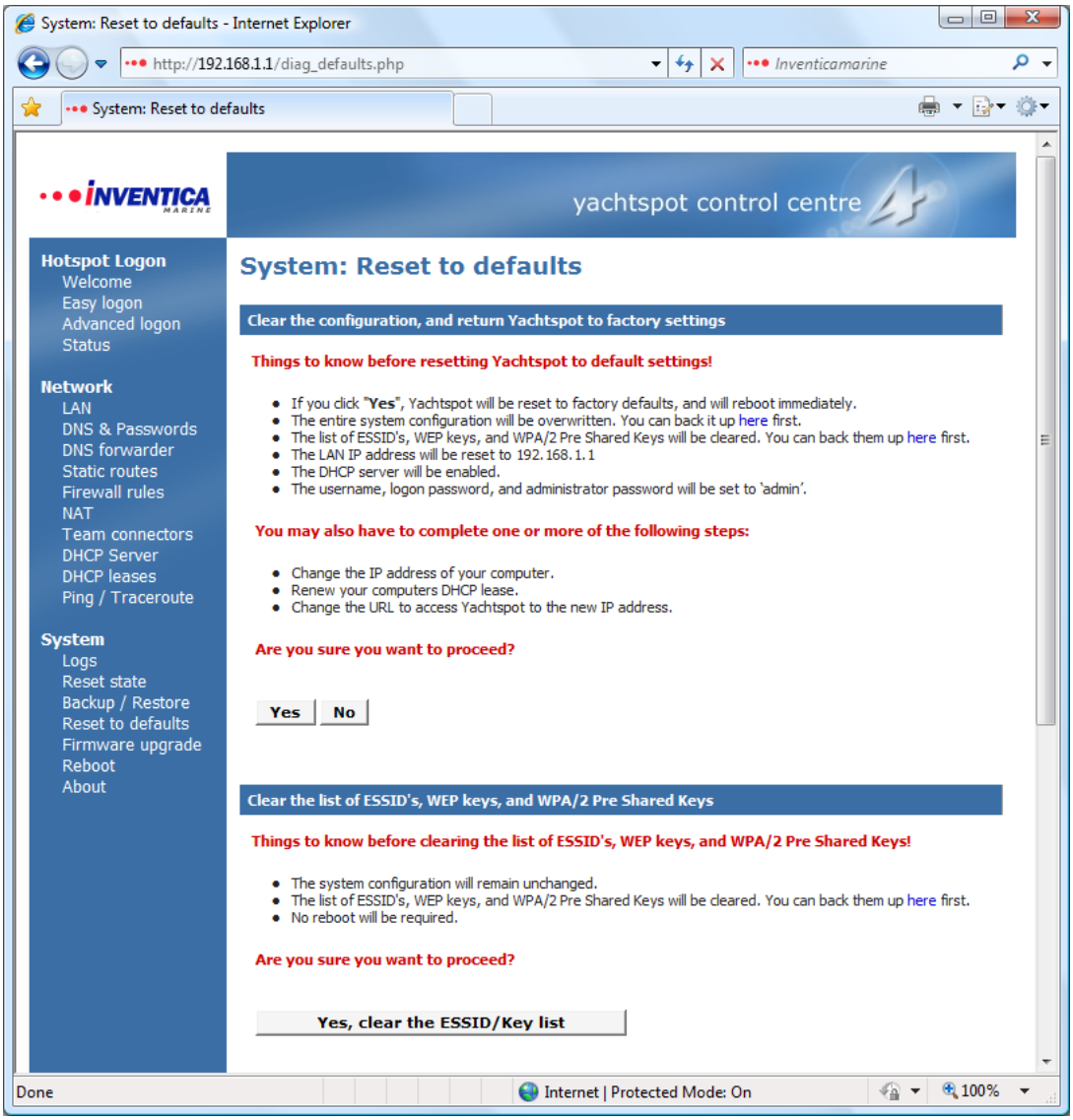
Resetting Yachtspot to it's default settings

Things to know before resetting Yachtspot to it's default settings:

The entire system configuration will be overwritten.
The LAN IP address will be reset to 192.168.1.1
The list of ESSID's, WEP keys, and WPA/2 Pre Shared Keys will be cleared.
The DHCP server will be enabled.
The username, logon password, and administrator password will be set to 'admin'.

You may also have to complete one or more of the following steps:

Change the IP address of your computer.
Renew your computers DHCP lease.
Change the URL to access Yachtspot to the new IP address.


System: Reset to defaults - Internet Explorer
http://192.168.1.1/diag_defaults.php
Inventicamarine
System: Reset to defaults
yachtspot control centre
Hotspot Logon
Welcome
Easy logon
Advanced logon
Status
Network
LAN
DNS & Passwords
DNS forwarder
Static routes
Firewall rules
NAT
Team connectors
DHCP Server
DHCP leases
Ping / Traceroute
System
Logs
Reset state
Backup / Restore
Reset to defaults
Firmware upgrade
Reboot
About
System: Reset to defaults
Clear the configuration, and return Yachtspot to factory settings
Things to know before resetting Yachtspot to default settings!
If you click "Yes", Yachtspot will be reset to factory defaults, and will reboot immediately.
The entire system configuration will be overwritten. You can back it up here first.
The list of ESSID's, WEP keys, and WPA/2 Pre Shared Keys will be cleared. You can back them up here first.
The LAN IP address will be reset to 192.168.1.1
The DHCP server will be enabled.
The username, logon password, and administrator password will be set to 'admin'.
You may also have to complete one or more of the following steps:
Change the IP address of your computer.
Renew your computers DHCP lease.
Change the URL to access Yachtspot to the new IP address.
Are you sure you want to proceed?
Yes
No
Clear the list of ESSID's, WEP keys, and WPA/2 Pre Shared Keys
Things to know before clearing the list of ESSID's, WEP keys, and WPA/2 Pre Shared Keys!
The system configuration will remain unchanged.
The list of ESSID's, WEP keys, and WPA/2 Pre Shared Keys will be cleared. You can back them up here first.
No reboot will be required.
Are you sure you want to proceed?
Yes, clear the ESSID/Key list
Done
Internet | Protected Mode: On
100%

Things to know before clearing the list of ESSID's, WEP keys, and WPA/2 Pre Shared Keys:

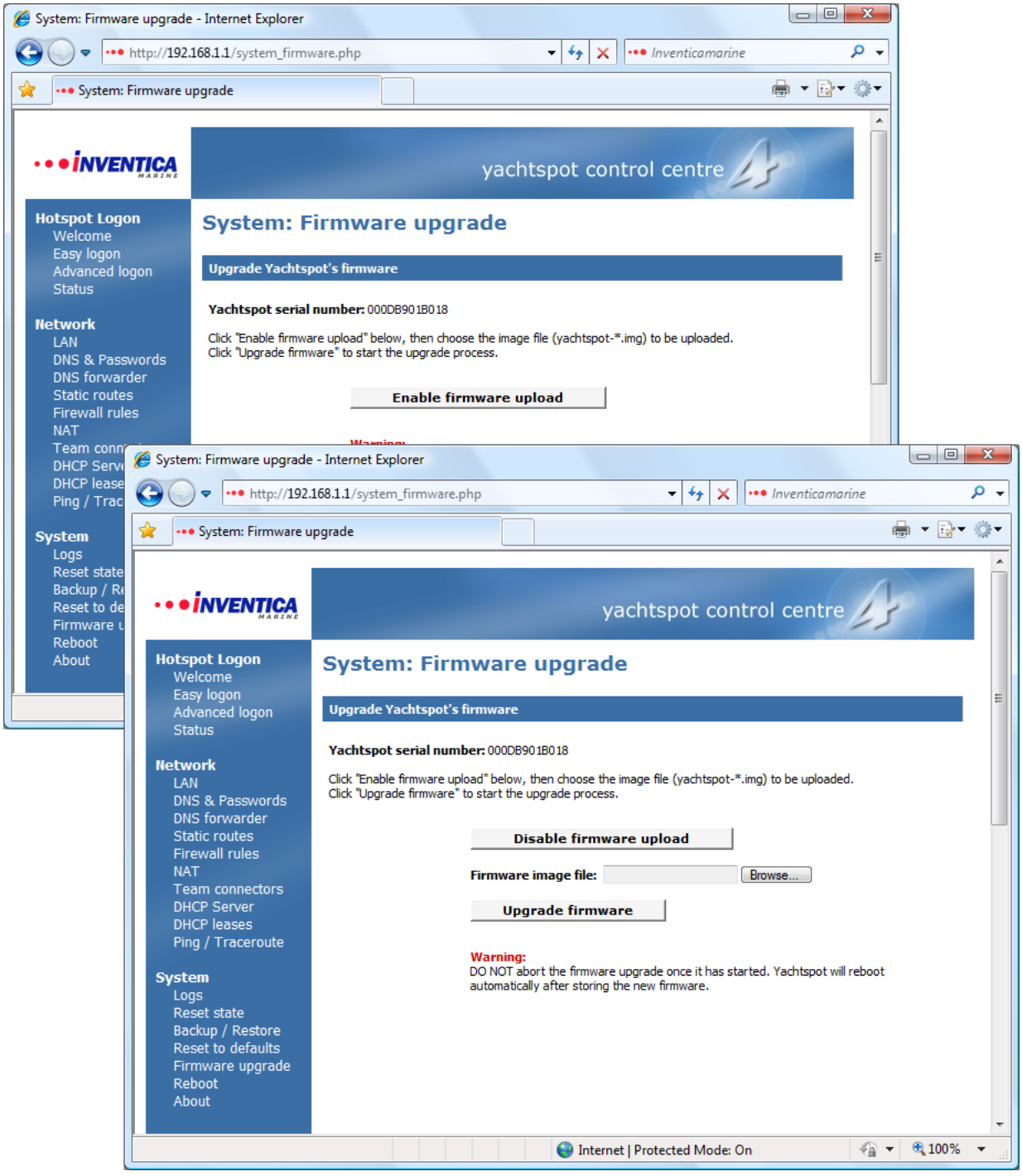
The system configuration will remain unchanged.
The list of ESSID's, WEP keys, and WPA/2 Pre Shared Keys will be cleared.
No reboot will be required.

Firmware upgrade

Full instructions come with all firmware upgrades.

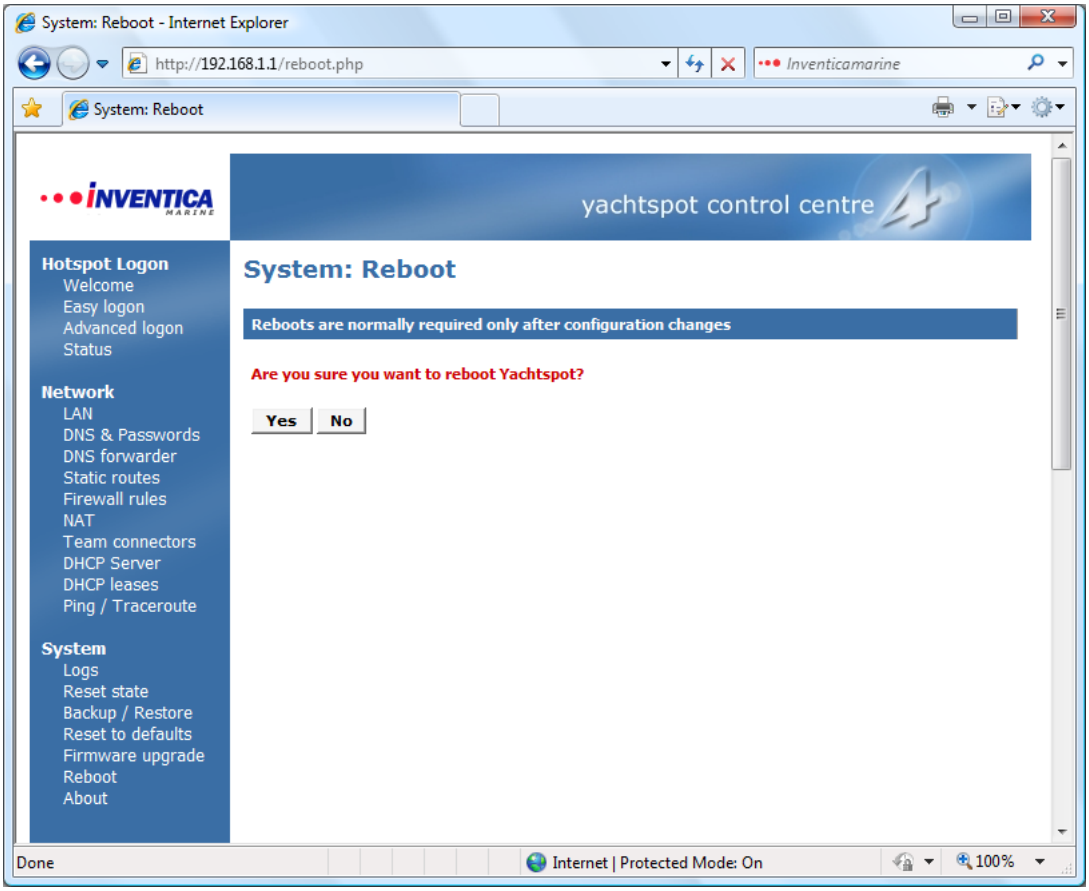
The usual sequence is:

Enable firmware upload > Browse to the new image file > Upgrade firmware



Rebooting Yachtspot

Reboots are normally required only after configuration changes.



Troubleshooting Tips

If you are using encryption, and having problems with association, and getting an IP address

1) Check the WEP key is correct.
2) If the WEP key is in hex. Are you preceding it with '0x'?
3) Check the WPA/2-PSK pre shared key is correct.

You are associated but have no IP address

1) Wait at least 2 minutes. DHCP log on can take time on slow networks.
2) Check if you can you connect to the hotspot with another wireless enabled computer.

You are associated, and have a gateway but no IP address

Suggestion:
Check that you are not trying to connect to a network with the same IP address range as you are using on the LAN.

Reason:
Yachtspot is a wireless router, not a bridge, and cannot pass traffic between two networks with the same address range.

Solution:
Alter the LAN IP range so it doesn't conflict. See our recommendations.

If you are associated with an IP address, and gateway but you cannot browse the internet

Suggestions:

Check the DNS servers you are using are correct and responding.

If a ping to an dot-decimal notation address [xxx.xxx.xxx.xxx]works but not one to a FQHN [www.google.com], it would suggest the DNS servers are not working.

You may not be able to browse because a router on the Internet is down.

Run a traceroute to a popular web site like www.google.com from Yachtspot.

Yachtspot is behaving oddly. I can't see any networks. Some pages time out.

Clear your cache [Temporary Internet Files], and History. Check your browser is not working offline. Try connecting from another computer.

Packing list

1 Yachtspot fully assembled comprising of NEMA case, bulkhead bracket, pigtail, waterproof Ethernet connector [internal], motherboard, wireless card, CF card.

1 Pole bracket with U bolts
1 Waterproof Ethernet connector [external parts]
1 Power supply
1 POE connector
1 Manual on CD
1 Small antenna
1 Crossover cable
1 Patch cable
1 Serial number & Guarantee